# LOGIQ P9 R4 Product Spec Sheet (Global version)

June 24, 2021

## General Specifications

### Dimensions and Weight

| | |
|---|---|
| Height | • Articulating monitor arm (standard)<br>– Maximum: 1345 mm (53.0 inch)<br>– Minimum: 1595 mm (62.8 inch) |
| Width | • Keyboard: 430 mm (16.9 inch)<br>• Foot cover: 495 mm (19.5 inch)<br>• Monitor: 545 mm (21.5 inch; 23.8 Bezel-less LCD) |
| Depth | • Foot cover: 685 mm (27.0 in)<br>• Rear handle: 740 mm (29.1 in) |
| Weight (max. load) | • 83 kg/183 lbs |
| Weight (min. load) | • 67 kg/148 lbs |

### Electrical Power

| |
|---|
| Voltage: 100 – 240 Vac |
| Frequency: 50/60 Hz |
| Power consumption maximum of 500 VA with peripherals |
| Maximum thermal output: 700 BTU/hr |

### Console Design

| | |
|---|---|
| 4 active probe ports (3 x RS and 1 x DLP) | |
| 1 CW pencil probe port | |
| Probe light | |
| Integrated Solid State Drive (capacity: 500 GB) | |
| Integrated DVD ± R/W multi drive (option) | |
| On-board storage for B/W-printer | |
| Integrated speakers | |
| Wheels: | • Wheel diameter: 125 mm<br>• Locking mechanism that provides rolling lock and caster swivel lock |
| Probe holders, removable for cleaning and washing | |
| Gel holder with integrated gel warmer (option), removable for cleaning and washing | |
| Integrated cable management | |
| Easily removable air filters | |
| Front and rear handles (option) | |

## User Interface

### Operator Keyboard

| | |
|---|---|
| Operating keyboard adjustable in two dimensions: | • Height: 810-910 mm<br>• Rotation: ±30° |
| Digital TGC and digital A/N keyboard | |
| Backlit alphanumeric keyboard (option), 16 mm spacing | |
| Ergonomic hard key layout | |

Multigestational Touch control

Interactive back-lighting

Integrated recording keys for remote control of up to 8 peripheral devices or DICOM® devices

| Touch Screen |
|---|
| 10.4'' wide LCD, high resolution, color touch screen |
| Interactive dynamic software menu |
| Brightness adjustment |
| User-configurable layout |

| Monitor | |
|---|---|
| 23.8inch Bezel-less LCD LED backlight monitor | |
| Tilt/rotate/translate | • Tilt angle +15°/-90°<br>• Rotate angle ±90°<br>• Translate horizontal 660 mm<br>• Translate vertical 150 mm |
| Fold-down and lock mechanism for transportation | |
| Brightness and contrast adjustment | |
| Horizontal/vertical viewing angle of ±178° | |
| Articulating monitor arm | |

# System Overview

| Applications | |
|---|---|
| Abdominal | |
| Obstetrical | |
| Gynecological | |
| Breast | |
| Small Parts | |
| Musculoskeletal and Superficial | |
| Vascular | |
| Urological | |
| Endocavitary | • Transvaginal<br>• Transrectal |
| Pediatric and Neonatal | |
| Transcranial | |
| Transesophageal | |
| Cardiac | |
| Intraoperative | |

| Scanning Methods |
|---|
| Electronic sector |
| Electronic convex |
| Electronic micro convex |
| Electronic linear |
| Real-time 4D volume sweep |

| Transducer Types |
|---|
| Sector phased array |
| Convex array |
| Microconvex array |
| Linear array |
| Matrix array |
| Single CW (pencil) probes |
| Volume probes (4D) |

| **Operating Modes** |  |
| --- | --- |
| B-Mode |  |
| Coded Harmonic Imaging |  |
| M-Mode |  |
| Color Flow Mode (CFM) |  |
| Power Doppler Imaging (PDI) with directional map |  |
| PW Doppler with high PRF |  |
| M-Color Flow Mode |  |
| Anatomical M-Mode |  |
| Anatomical M-Color Mode |  |
| B-Flow™/B-Flow Color Mode (option) |  |
| Extended Field of View (LOGIQView, option) |  |
| B Steer+ (option) |  |
| Coded Contrast Imaging (option) |  |
| CW Doppler Mode (option) |  |
| Tissue Velocity Imaging (TVI) Mode (option) |  |
| Strain Elastography (option) |  |
| SW DVR (option) |  |
| Shear Wave Elastography (option) |  |
| HD*live* ™ (option) |  |
| UGAP (option) |  |
| 3D/4D Volume Modes: | • 3D static (option)<br>• 4D real-time (option) |

| **System Standard Features** |  |
| --- | --- |
| SSD disk partition of 345 GB for image storage without compression |  |
| Storage formats | • DICOM: compressed/ uncompressed, single/multi-frame, with/without raw data<br>• Export JPEG, WMV (MPEG 4), and AVI formats |
| Advanced user interface with high resolution 10.4'' wide LCD touch panel |  |
| Automatic optimization | • Auto tissue optimization<br>• Auto spectral optimization<br>• Auto TGC |
| CrossXBeam™ compounding |  |
| Speckle Reduction Imaging (SRI-HD) |  |
| Fine angle steer |  |
| Coded Harmonic Imaging |  |
| Virtual convex |  |
| Easy 3D |  |
| Anatomical M-Mode |  |
| Patient information database |  |
| Image archive on integrated CD/DVD (option) and SSD |  |
| Easy backup to media for data security |  |
| TruAccess, raw data processing and analysis |  |
| Real-time automatic doppler calcs |  |
| OB calcs |  |

| Fetal trending |
| --- |
| Multi gestational calcs |
| Hip dysplasia calcs |
| Gynecological calcs |
| Vascular calcs |
| Cardiac calcs |
| Urological calcs |
| Renal calcs |
| InSite™ ExC capability, remote service |
| iLinq capability, remote service |
| On-board electronic documentation (PDF format) |
| MPEGVue |
| Key macro |
| Network storage |
| Quick save |
| Quick patient entry |
| TIC motion tracking |
| My Page |
| My Trainer+ |
| Email to MMS |
| Reset |
| Tricefy™ |
| Privacy and Security |
| Multigestational Touch control |
| IOTA (International Ovarian Tumor Analysis) LR2 worksheet |

*Note) IOTA is not available in USA, Japan and China.*

| Vnav Import |
| --- |
| Doppler Assistant |
| MyPreset |
| SonoRenderLive |
| **System Options** |
| Auto IMT |
| AutoEF |
| Strain Elastography |
| Elastography Quantification |
| Advanced 3D with 3D landscape |
| DICOM 3.0 connectivity |
| LOGIQView |
| B-Flow/B-Flow Color |
| CF/PDI Quantification |
| Measure assist breast |
| Measure assist OB |
| Breast productivity package |
| Thyroid productivity package |
| B Steer+ |
| Stress Echo |
| Tissue Velocity Imaging (TVI) with Q-Analysis |
| Scan assistant |
| Compare assistant |
| Cardiac Strain |

| | |
|---|---|
| Report writer | |
| ECG | |
| ECG AHA cable | |
| ECG IEC cable | |
| CW Doppler | |
| Q-Path | |
| SW DVR Basic | |
| SW DVR | • Storage: CD/DVD media<br>• Storage: USB memory stick |
| Real-time 4D | |
| 4D TUI | |
| Static 3D color | |
| Volume review | |
| VOCAL | |
| VCI static | |
| STIC | |
| OmniView | |
| Offline scanning | |
| Shear Wave Elastography | |
| HD*live* | |
| HRES CEUS | |
| LOGIQ P Apps (Software key only) | |
| AFI | |
| Coded Contrast (CEUS) | |
| Koios Breast Lesion Decision Support4 | |
| UGAP | |
| Hepatic Assistant | |
| SonoAVC Renal | |
| SonoNT/SonoIT | |
| Start Assistant | |
| Digital Expert | |
| High cabinet | |
| Low cabinet | |
| Drawer | |
| Side tray | |
| Small probe adaptor | |
| Vertical endocavitary probe holder | |
| Probe cable hanger | |
| Cable hook rear | |
| Card reader mounting kit | |
| Paper tray | |
| OPIO tray | |
| Gel warmer | |
| Multipurpose holder | |
| Physical A/N keyboard | |

## Peripheral Options

| |
|---|
| Integrated mounting kits and remote controls provided for B/W digital thermal printer |
| Digital color A6 thermal printer |
| Digital color A5 thermal printer |
| Barcode reader (for reading needle information) |
| External USB printer connection |

| | |
|---|---|
| Wireless LAN card for wireless data transfer | |
| LOGIQ P apps (Bluetooth) | |
| HDMI output available for compatible devices | |
| Foot switch, with programmable functionality, 3-pedal | |
| Universal video converter | |
| Power assistant (battery or extended battery option) for offline scanning | |
| Isolation transformer | |
| S-video | |
| Composite output | |
| EMI filter | |

**Display Modes**

| | |
|---|---|
| Live and stored display format: full size and split screen – both with thumbnails. For still and CINE | |
| Review image format: 4x4, and "thumbnails." For still and CINE | |
| Simultaneous capability | • B/PW<br>• B/CFM or PDI<br>• B/M<br>• B + CFM/M<br>• Real-time Triplex Mode (B + CFM or PDI/PW or CW)<br>• B-Flow + PW<br>• Dual B (B/B) |
| Selectable alternating modes | • B/M<br>• B/PW<br>• B + CFM/M<br>• B + CFM (PDI)/PW (CW)<br>• B-Flow + PW<br>• 3D – Mode<br>• 3D – Mode Color<br>• B/CW<br>• B + CFM (PDI)/CW |
| Multi-image split screen (quad screen) | • Live and/or frozen<br>• B + B/CFM or PDI<br>• PW/M |
| Independent CINE playback | |
| Zoom: write/read/pan | |
| Colorized image | • Colorized B<br>• Colorized M<br>• Colorized PW<br>• Colorized CW<br>• Colorized B-Flow |
| Time line display | |
| Independent dual B/PW display | |
| CW | |
| Display formats: | • Top/bottom selectable format (size: 1/2:1/2; 1/3:2/3; 2/3:1/3)<br>• Side/side selectable format (size: 1/2:1/2; 1/3:2/3; 0:1) switchable after freeze |

| Timeline only | |
|---|---|
| Virtual convex | |
| CrossXBeam | |
| Tissue Velocity Imaging (TVI) Mode | |
| Elastography and simultaneous B/Elasto | |
| UGAP/SWE simultaneous | |

| **Display Annotation** | |
|---|---|
| Patient name: first, last and middle name each store 27 characters. Up to 64 total characters displayed | |
| Patient ID: 31 characters. Up to 27 characters displayed | |
| 2nd patient ID | |
| Age, sex and date of birth | |
| Hospital name: 23 characters | |
| Date format: 3 types selectable | • MM/DD/YY <br> • DD/MM/YY <br> • YY/MM/DD |
| Time format: 2 types selectable | • 24 hours <br> • 12 hours |
| Gestational age from LMP/EDD/GA/BBT | |
| Probe name | |
| Map names | |
| Probe orientation | |
| Depth scale marker | |
| Lateral scale marker | |
| Focal zone markers | |
| Image depth | |
| Zoom depth | |
| B-Mode | • Gain <br> • Dynamic range <br> • Imaging frequency <br> • Edge enhance <br> • Frame averaging <br> • Gray map <br> • ATO on/off <br> • SRI-HD <br> • CrossXBeam |
| M-Mode | • Gain <br> • Dynamic range <br> • Time scale |
| Doppler Mode | • Gain <br> • Angle <br> • Sample volume depth and width <br> • Wall filter <br> • Velocity and/or frequency scale <br> • Spectrum inversion <br> • Time scale <br> • PRF <br> • Doppler frequency |

| Color Flow Mode | • Line density |
| --- | --- |
| | • Frame averaging |
| | • Packet size |
| | • Color scale: 3 types |
| |   – Power |
| |   – Directional PDI |
| |   – Symmetrical velocity imaging |
| | • Color velocity range and baseline |
| | • Color threshold marker |
| | • Color gain |
| | • PDI |
| | • Color scale inversion |
| | • Color doppler frequency |

| TGC curve | |
| --- | --- |
| Acoustic frame rate | |
| CINE gage, image number/frame number | |
| DVR counter and status | |
| Body pattern: multiple human and animal types | |
| Application name | |
| Measurement results | |
| Operator message | |
| Displayed acoustic output | • TIS: Thermal Index Soft Tissue |
| | • TIC: Thermal Index Cranial (Bone) |
| | • TIB: Thermal Index Bone |
| | • MI: Mechanical Index |

| % of power output |
| --- |
| Biopsy guide line and/or zone |
| Heart rate |

## General System Parameters

### System Setup

| 8 pre-programmable categories |
| --- |
| User programmable preset capability |
| Factory default preset data |
| Languages: English, French, German, Spanish, Italian, |
| Portuguese, Russian, Greek, Swedish, Danish, Dutch, |
| Finnish, Norwegian, Japanese (message only), Chinese (message only) |
| OB report format: 5 types, Tokyo Univ., Osaka Univ., USA, Europe, and ASUM |
| EFBW: 10 types, Japan, USA and Europe (Tokyo Uni., Osaka Univ., Tokyo Shinozuka, JSUM, German, Shepard, Merz, Hadlock/Shepard, Williams, Brenner) |

| Pre-defined annotations and user programmable |
| --- |
| User defined libraries/annotations |
| Body patterns |
| Customized comment home position |

### Complete User Manual Available On Board Through Help (F1)

User manual and service manual are included in eDoc USB stick with each system. A printed manual is available upon request.

### CINE Memory/Image Memory

| | |
|---|---|
| CINE memory: 776 MB | |
| Selectable CINE sequence for CINE review | |
| Prospective CINE mark | |
| Measurements/calculations and annotations on CINE playback | |
| Scrolling timeline memory | |
| CINE capture function | |
| Digital continuous CINE capture | |
| Dual image CINE display | |
| Quad image CINE display | |
| CINE gauge and CINE image number display | |
| CINE review loop | |
| CINE review speed: 10 steps (11, 13, 14, 17, 22, 25, 31, 100, 200, 400%) | |

## Image Storage

| | |
|---|---|
| On-board database of patient information from past exams | |
| Storage formats: | • DICOM: compressed/ uncompressed, single/multi-frame, with/without Raw Data |
| Storage formats: (cont.) | • Export JPEG, JPEG2000, WMV (MPEG 4), and AVI formats |
| DICOM still image storage size: ~2.1 MB | |
| Gray image: ~1.3 to ~3.5 MB | |
| Color image: ~1.8 to ~5.0 MB | |
| Display format: full size, 4x4 and "thumbnails" | |
| Storage devices: | • Internal Solid-State Drive partition of 345 GB for image storage<br>• External USB 2.0 hard drive support for import, export, DICOM read, SaveAs and MPEGVue<br>• USB memory stick support for SaveAs and MPEGVue (64 MB to 4 GB)<br>• CD-R storage: 700 MB<br>• DVD storage: -R (4.7 GB) |
| Conversion to formats: JPEG, AVI, WMV | |
| Live image and stored image side-by-side display | |
| Compare old images with current exam | |
| Reload of archived date sets | |
| Network storage support for import, export, DICOM read, SaveAs, MPEGVue | |

## Connectivity & DICOM

| | |
|---|---|
| Privacy and Security | • Password Policies<br>• Provides the ability to specify password policies for user accounts<br>• Session Management<br>• Lock screen after minutes (configurable)<br>• Hard Disk Encryption<br>• Encrypts patient data archive partition<br>• Provides whitelisting type malware protection<br>• TPM Support for security |

| DICOM 3.0 (option) | • Verify<br>• Print<br>• Store<br>• Modality worklist<br>• Storage commitment<br>• Modality Performed Procedure Step (MPPS)<br>• Media exchange<br>• Off network/mobile storage queue<br>• Query/retrieve<br>• Structured reporting<br>• Public SR template<br>• Structured reporting – compatible with vascular and OB standard<br>• Direct export DICOM SR and XML<br><span style="color:red">• Media store of SR</span><br>• InSite ExC capability |
|---|---|

Ethernet network connection

Wireless LAN (option)

LOGIQ P Apps

**Physiological Input Panel**

Physiological input

ECG, 2 lead

Dual R trigger

Pre-settable ECG R delay time

Re-settable ECG position

Adjustable ECG gain control

Automatic heart rate display

**Scanning Parameters**

Digital P-Agile beamformer architecture

386,469 system processing channels

Max. frame rate up to 3229 F/s

Displayed imaging depth: 0 – 48 cm

Minimum Depth of Field: 0 – 1 cm (zoom, probe dependent)

Maximum Depth of Field: 0 – 48 cm (probe dependent)

Transmission focus: 1 – 8 focal points selectable (probe and application dependent)

Quad beamforming

Continuous dynamic receive focus/aperture

Multi-frequency/wideband technology

Frequency range: 2 – 22 MHz

256 shades of gray

Dynamic range > 400dB in system level (composite dynamic level)

Adjustable dynamic range

Adjustable Field Of View (FOV): Up to 168 degree (depending on probe)

Image Reverse: right/left

Image rotation: 4 steps of 0°, 90°, 180°, 270°

**Digital B-Mode**

Acoustic power output: 0 – 100%, 25 steps

Gain: from 0 – 90 dB, 1 dB step

Dynamic range: 36 – 96 dB, 3 dB or 6 dB steps

| |
|---|
| Frame averaging: 8 steps |
| Gray scale map: 7 types |
| Tint map: 9 types |
| Frequency: up to 5 selectable (depending on probe) |
| Speed of sound (probe, application dependent) |
| Line density: 5 steps |
| Line density zoom: 5 steps |
| Thermal index: TIC, TIS, TIB |
| Image reverse: on/off |
| Focus number: 8 steps |
| Focus width: 3 types |
| Suppression: 6 steps |
| Edge enhance: 7 steps |
| Rejection: 6 steps |
| Steered linear: ±12° |
| Scanning size (FOV or angle – depending on the probe) |
| SRI-HD: up to 6 levels selectable |
| CrossXBeam: up to 9 angles selectable |
| Depth: 1 – 48 cm, 1 cm step, probe dependent |
| **Digital M-Mode** |
| Gain: -20 – 20 dB, 1 dB step |
| Compression: 0.5 – 2.4, 13 steps |
| Sweep speed: 0 – 7, 8 steps |
| Frame averaging |
| Gray scale map: 7 types |
| M colorization: 9 types |
| Frequency |
| Line density |
| Scanning size (FOV or angle – depending on probe, see probe specifications) |
| Rejection: 6 steps |
| M/PW display format: V-1/3B, V-1/2B, V-2/3B, H-1/2B, H-1/4B, timeline only |
| **Anatomical M-Mode** |
| M-Mode cursor adjustable at any plane |
| Can be activated from a CINE loop, from a live or stored image |
| M & A capability |
| Available with Color Flow Mode |
| Curved Anatomical M-Mode |
| **Digital Spectral Doppler Mode** |

| Adjustable: | • Acoustic power: 0 – 100, 25 steps |
| --- | --- |
| | • Gain: 0 – 85, 86 steps |
| | • Gray scale map: 8 types |
| | • Transmit frequency: up to 5 steps, depends on probe |
| | • Wall filter: 5.5 – 5000 Hz, 27 steps |
| | • PW colorization: 6 types |
| | • Velocity scale range: 8 steps |
| | • Sweep speed: 8 steps |
| | • Sample volume length: 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 14, 16 mm |
| | • Angle correction: ±90°, 1° step |
| | • Steered linear: 7 steps |
| | • Spectrum inversion: on/off |
| | • Trace method: 3 steps |
| | • Baseline shift: 5 to 95%, 11 steps |
| | • Doppler auto trace: 3 steps |
| | • Compression: 12 steps |
| | • Trace direction: 3 steps |
| | • Trace sensitivity: 21 steps |

## Digital Color Flow Mode

Baseline: 0 – 100%, 11 steps

Invert: on/off

CF/PDI focus depth: default pre-settable for 10 – 100% of ROI in depth, 6 steps

CF/PDI flash suppression: 5 steps

CF/PDI angle steer: 0, ±20°

Packet size: 8 – 24, dependent on probe and application

Line density: 5 steps

Line density zoom: 5 steps

Frame average: 7 steps

PRF: 0.1 – 23.5 kHz/20 steps

Spatial filter: 6 steps

Gain: 0 – 40 dB, 0.5 dB steps

Composite dynamic range: 174 – 270 dB, 3 dB or 6 dB steps

Wall filter: 4 steps, dependent on probe and application

Scanning size (FOV or angle): probe dependent

CF/PDI vertical size (mm) of ROI: default pre-settable

CF/PDI center depth (mm) of ROI: default pre-settable

CF/PDI frequency: up to 5, depending on probe

Color maps, including velocity-variance maps: 20 types depending on application

Transparent: 5 steps

Color threshold: 0 – 100%, 11 steps

Arbitration threshold: 15 steps pre-settable

Auto line density: on/off pre-settable

PW/CF ratio: 1, 2, 4

Accumulation: 8 steps

Quantification

## Digital Power Doppler Imaging

PDI map: 16 types

CF/PDI focus depth: default pre-settable for 10 – 100% of ROI in depth, 6 steps

CF/PDI acoustic output: 0 – 100%, 10% steps

| CF/PDI angle steer: 0, ±20° |
|---|
| Packet size: 8 – 24, dependent on probe and application |
| Spatial filter: 6 steps |
| Frame average: 7 steps |
| PRF: 0.1 – 23.5 kHz/20 steps |
| Power threshold: 0 – 100%, 11 steps |
| Arbitration threshold: 15 steps pre-settable |
| Gain: 0 – 40 dB, 0.5 dB steps |
| Wall filter: 4 steps depending on probe and application |
| CF/PDI frequency: up to 5 steps, depending on probe |
| Auto line density: on/off pre-settable |
| Transparent: 5 steps |
| Invert: on/off |
| Accumulation: 8 steps |
| Flash suppression |

| **PW/CW Wave Doppler** | |
|---|---|
| Velocity scale: | • Max. 10.34 m/s<br>• Min. 0.06 m/s |
| Gray scale map: 8 types | |
| Baseline: 5 – 95%, 11 steps | |
| SV gate: 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 14, 16 mm | |
| Angel correct: ± 90°, 1° step | |
| Spectral color: 6 types | |
| PW sweep speed: 8 steps | |
| Invert: on/off | |
| M/PW display format: V-1/3B, V-1/2B, V-2/3B, H-1/2B, H-1/4B, timeline only | |
| Duplex: on/off (PW only) | |
| PW/CF ratio: 1, 2, 4 | |
| Gain: 0 – 85 dB, 1 dB steps | |
| Wall filter: 5.5 – 5000 Hz, 27 steps, dependent on probe and application | |
| PW angle steer: 0, ±10, 15, 20° | |
| PRF: 0.5 – 26.7 kHz with PW, 0.4 – 49.0 kHz with CW | |
| Sample volume depth: 30 steps default pre-settable | |
| CW-Mode is available on the following probes: | • 3Sc-RS<br>• 6S-RS<br>• 12S-RS<br>• P2D<br>• P8D<br>• P6D |
| Steerable CW Mode includes | |
| Transmit frequency | |
| CW colorization | |
| Velocity scale range | |
| Spectrum inversion | |
| Trace method | |
| Doppler auto trace | |
| Trace direction | |
| Trace sensitivity | |

| **Automatic Optimization** |
|---|

Optimize B-Mode, B-Flow image to improve contrast resolution. Selectable amount of contrast resolution improvement (low, medium, high)

| Auto TGC | |
| --- | --- |
| CTO | |
| Auto-spectral optimize adj | • Baseline<br>• Invert<br>• PRF (on live image)<br>• Angle correction |

| **Coded Harmonic Imaging** |
| --- |
| Available on all imaging probes |
| Line density: 5 steps |
| Line density zoom 5 steps |
| Suppression: 6 steps |
| Edge enhance: 7 steps |
| Gray scale map: 7 types |
| Tint map: 9 types |
| Gain: 0 – 90 dB, 1 dB step |
| Dynamic range: 36 – 96 dB, 3 dB or 6 dB steps |
| Rejection: 6 steps |
| Frequency: up to 4 steps, probe depended |
| **B-Flow/B-Flow color (option)** |
| Available on C1-6-D, C2-7-D, 10C-D, 9L-RS, 12L-RS, ML6-15-RS, L8-18i-RS, C1-5-RS, 8C-RS, L6-12-RS, L4-12t-RS, L10-22-RS, L3-9i-RS, E8CS-RS, BE9CS-RS, L3-12-RS, IC9-RS probes |

Hybrid B-Flow: Available on C1-5-RS, 12L-RS, 9L-RS, ML6-15-RS, L4-12t-RS, L3-12-RS, C1-6-D, C2-7-D and 10C-D
B & B-Flow simultaneous dual display
B & B-Flow overlay display

| B-Flow High Definition Color (HD Color): Available on C1-5-RS, 12L-RS, ML6-15-RS, L4-12t-RS, L3-12-RS and C1-6-D probes |
| --- |
| Background: on/off |
| Sensitivity/PRI: 17 steps |
| Line density: 5 steps |
| Edge dnhance: 7 steps |
| Frame average: 8 steps |
| Gray scale map: 8 types |
| Tint map: 9 types |
| Dynamic range: 36 – 96 dB, 3 dB or 6 dB steps |
| Rejection: 6 steps |
| Gain: 0 – 90 dB, 1 dB step |
| Dual Beam: on/off pre-settable |
| B-Flow Color: 8 color maps and 6 directional maps |
| Accumulation: 8 steps |
| **Coded Contrast Imaging (option.)** |
| AM mode          : Available on C1-6-D, C2-7-D, C1-5-RS, 9L-RS, 3Sc-RS, BE9CS-RS, IC9-RS |
| HRes mode        : Available on C1-6-D, C2-7-D, C1-5-RS, 9L-RS, 3Sc-RS |
| AM mode frequency    : General, Resolution and Penetration |
| HRes mode frequency  : General |
| Tissue background selection: 4 steps |
| Display tissue image and contrast enhanced image simultaneously in split screen |
| 2 separate contrast timers |
| Timed updates: 0.05 – 10 seconds |
| Accumulation mode: 6 steps |

| Max Enhancement Mode: on/off |
| Gray scale map: 21 types |
| Colorization: on/off |
| Time trigger scan: 0.3 & 0.5 – 10 sec, 0.5 sec step |
| Flash/Burst Mode |
| Time Intensity Curve (TIC) analysis |
| Auto MI control |

The LOGIQ P9 is designed for compatibility with commercially available ultrasound contrast agents. Because the availability of these agents is subject to government regulation and approval, product features intended for use with these agents may not be commercially marketed nor made available before the contrast agent is cleared for use. Contrast related product features are enabled only on systems for delivery to an authorized country or region of use.

| **LOGIQView (option)** |
| Extended Field of View imaging |
| Available on all imaging probes |
| For use in B-Mode |
| CrossXBeam is available on linear probes |
| Auto detection of scan direction |
| Pre or post-process zoom up to 10x |
| Rotation |
| Auto best fit on monitor |
| Measurements in B-Mode |
| Up to 60 cm scan length |
| **Easy 3D (available on all imaging probes)** |
| Colorize image |
| Threshold (opacity) |
| Render |
| Texture |
| Gray surface |
| Scalpel |
| Auto movie |
| Undo |
| Reset |
| Allows unlimited rotation and planar translation |
| 3D reconstruction from CINE sweep |
| **Advanced 3D (Available On All Imaging Probes) (option)** |
| Acquisition of color data |
| Automatic rendering |
| 3D landscape technology |
| 3D movie |
| Main Mode |
| **Real-time 4D (option)** |

| Acquisition modes: | • Real-time 4D mode<br>• Static 3D mode |

| Visualization modes: | • 3D rendering (diverse surface and intensity projection modes)<br>• Sectional planes (3 section planes perpendicular to each other)<br>• Volume contrast imaging-static<br>• Tomographic ultrasound imaging |
|---|---|
| Render mode: | • Surface texture, surface smooth, max-, min- and X-ray (average intensity projection), mix mode of two render modes |

Curved 3 point Render start

3D Movie

Scalpel: 3D Cut tool

| Display format: | • Quad: A-/B-/C-Plane/3D<br>• -Dual: A-Plane/3D<br>• Single: 3D or A- or B- or C-Plane |
|---|---|
| Automated Volume Calculation - VOCAL II (option) | • Betaview<br>• Auto sweep |

STIC (option)

HDlive™ (option)

VCI Static (option)

| Omniview (option) | VCI OmniView |
|---|---|

**Scan Assistant (option)**

Workflow enhancement tool for standardized and repetitive exams

Include factory programs

User-defined programs and import functionality

Steps include image annotations, mode transitions, basic imaging controls and measurement initiation

**Compare Assistant (Option)**

Side-by-side comparison of previous ultrasound and other modality exams during live scanning

**Report Writer (option)**

On-board reporting package automates report writing

Formats various exam results into a report suitable for printing or reviewing on a standard PC

Exam results include patient info, exam info, measurements, calculations, images, comments and diagnosis

Standard templates provided

Customizable templates

Thyroid reporting template

**Strain Elastography (option)**

Available on C1-6-D, C1-5-RS, ML6-15-RS, 9L-RS, 12L-RS, L6-12-RS, L4-12t-RS, E8CS-RS, BE9CS-RS, L3-12-RS, IC9-RS probes

E index: 8 maximum

E ratio: 7 maximum

**B Steer+ (option)**

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Available on C1-5-RS, 8C-RS, L6-12-RS, 12L-RS, 9L-RS, ML6-15-RS, L4-12t-RS, L3-12-RS, RAB2-6-RS, C1-6-D, C2-7-D and 10C-D probes

**TVI (option)**

Myocardial Doppler Imaging with color overlay on tissue image

Available on all sector probes

Tissue color overlay can be removed to show just the 2D image, still retaining the tissue velocity information

Curved Anatomical M-Mode: free (curved) drawing of M-Mode generated from the cursor independent from the axial plane

Q-Analysis: Multiple time-motion trace display from selected points in the myocardium

**Stress Echo (option)**

Advanced and flexible stress-echo examination capabilities

Provides exercise and pharmacological protocol templates

8 default templates

Template editor for user configuration of existing templates or creating new templates

Reference scan display during acquisition for stress level comparison (dual screen)

Baseline level/previous level selectable

Raw data continuous capture (over 180 sec available)

Wall motion scoring (bulls-eye and segmental)

Smart stress: automatically set up various scanning parameters (e.g. geometry, frequency, gain, etc.) according to same projection on previous level

**Shear Wave Elastography (Option)**

Available on C1-5-RS, L3-12-RS, IC9-RS, ML6-15-RS, C1-6-D and 12L-RS probes

User programmable measurement display in kPa and meters per sec.

Measurement range in m/s (Min. – Max.) : 0-10 m/s

Measurement range in kPa (Min. – Max.) : 0-300 kPa

Single and dual view display

**Auto EF (Option)**

Allows semi-automatic measurement of the global EF (Ejection Fraction)

User editable

**Virtual Convex**

Provides a convex Field of View

Compatible with CrossXBeam

Available on all linear and sector transducers

**SRI-HD**

High definition speckle reduction imaging

Provides multiple (6) levels of speckle reduction

Compatible with side-by-side DualView display

Compatible with all linear, convex and sector transducers

Compatible with B-Mode, color, contrast agent and 3D/4D imaging

Pre and post processing

**CrossXBeam**

Provides 3, 5, 7 or 9 angles of spatial compounding

Live side-by-side DualView display

| Compatible with | • Color Mode |
| --- | --- |
| | • PW |
| | • SRI-HD |
| | • Coded Harmonic Imaging |
| | • Virtual convex on linear probes |

Available on C1-5-RS, 8C-RS, E8C-RS, 9L-RS, 12L-RS, ML6-15-RS, L8-18i-RS, RAB2-6-RS, L6-12-RS, L4-12t-RS, L10-22-RS, L3-9i-RS, E8CS-RS, BE9CS-RS, RIC5-9A-RS, L3-12-RS, IC9-RS probes

| Controls Available While "Live" | |
| --- | --- |
| Write zoom | |

| B/M/CrossXBeam-Mode | • Gain |
| --- | --- |
| | • TGC |
| | • Dynamic range |
| | • Acoustic output |
| | • Transmission focus position |
| | • Transmission focus number |
| | • Line density control |
| | • Sweep speed for M-Mode |
| | • Number of angles for CrossXBeam |

| PW-Mode | • Gain |
| --- | --- |
| | • Dynamic range |
| | • Acoustic output |
| | • Transmission frequency |
| | • PRF |
| | • Wall filter |
| | • Spectral averaging |
| | • Sample volume gate |
| | – Length |
| | – Depth |
| | • Velocity scale |

| Color Flow-Mode | • CFM gain |
| --- | --- |
| | • CFM velocity range |
| | • Acoustic output |
| | • Wall echo filter |
| | • Packet size |
| | • Frame rate control |
| | • CFM spatial filter |
| | • CFM frame averaging |
| | • CFM line resolution |
| | • Frequency/velocity baseline shift |

| Controls Available on "Freeze" or Recall | |
| --- | --- |
| Automatic optimization | |
| SRI-HD | |
| CrossXBeam – display non-compounded and compounded image simultaneously in split screen | |

3D reconstruction from a stored CINE loop

| B/M/CrossXBeam-Mode | • Gray map optimization<br>• TGC<br>• Colorized B and M<br>• Frame average (loops only)<br>• Dynamic range |
|---|---|
| Anatomical M-Mode | |
| Max. read zoom to 8x | |
| Baseline shift | |
| Sweep speed | |
| PW-Mode | • Gray map<br>• Post gain<br>• Baseline shift<br>• Sweep speed<br>• Invert spectral wave form<br>• Compression<br>• Rejection<br>• Colorized spectrum<br>• Display format<br>• Doppler audio<br>• Angle correct<br>• Quick angle correct<br>• Auto angle correct |
| Color Flow-Mode | • Overall gain (loops and stills)<br>• Color map<br>• Transparency map<br>• Frame averaging (loops only)<br>• Flash suppression<br>• CFM display threshold<br>• Spectral invert for Color/Doppler |
| Anatomical M-Mode on CINE loop | |
| 4D | • Gray map, colorize<br>• Post gain<br>• Change display – single, dual, quad sectional or rendered |

## Measurements/Calculations

### General B-Mode

Depth & distance

Circumference (ellipse/trace)

Area (ellipse/trace)

Volume (ellipsoid)

% Stenosis (area or diameter)

Angle between two lines

### General M-Mode

M-Depth

Distance

Time

Slope

Heart rate

| **General Doppler Measurements/Calculations** |
|---|
| Velocity |
| Time |
| A/B ratio (Velocities/Frequency ratio) |
| PS (Peak Systole) |
| ED (End Diastole) |
| PS/ED ratio |
| ED/PS ratio |
| AT (Acceleration Time) |
| ACC (Acceleration) |
| TAMAX (Time Averaged Maximum velocity) |
| Volume flow (TAMEAN and vessel area) |
| Heart rate |
| PI (Pulsatility Index) |
| RI (Resistivity Index) |

| **Real-time Doppler Auto Measurements/Calculations** |
|---|
| PS (Peak Systole) |
| ED (End Diastole) |
| MD (Minimum Diastole) |
| PI (Pulsatility Index) |
| RI (Resistivity Index) |
| AT (Acceleration Time) |
| ACC (Acceleration) |
| PS/ED ratio |
| ED/PS ratio |
| HR (Heart Rate) |
| TAMAX (Time Averaged Maximum velocity) |
| PVAL (Peak Velocity value) |
| Volume flow (TAMEAN and vessel area) |

| **OB Measurements/Calculations** | |
|---|---|
| Gestational age by: | • GS (Gestational Sac) |
| | • CRL (Crown Rump Length) |
| | • FL (Femur Length) |
| | • BPD (Biparietal Diameter) |
| | • AC (Abdominal Circumference) |
| | • HC (Head Circumference) |
| | • APTD x TTD (Anterior/ Posterior Trunk Diameter by Transverse Trunk Diameter) |
| | • LV (Length of Vertebra) |
| | • FTA (Fetal Trunk Cross-sectional Area) |
| | • HL (Humerus Length) |
| | • BD (Binocular Distance) |
| | • FT (Foot Length) |
| | • OFD (Occipital Frontal Diameter) |
| | • TAD (Transverse Abdominal Diameter) |
| | • TCD (Transverse Cerebellum Diameter) |
| | • THD (Thorax Transverse Diameter) |
| | • TIB (Tibia Length) |
| | • ULNA (Ulna Length) |

| Estimated Fetal Weight (EFW) by: | • AC, BPD<br>• AC, BPD, FL<br>• AC, BPD, FL, HC<br>• AC, FL<br>• AC, FL, HC<br>• AC, HC<br>• BPD, APTD, TTD, FL<br>• BPD, APTD, TTD, SL |
|---|---|
| Calculations and ratios | • FL/BPD<br>• FL/AC<br>• FL/HC<br>• HC/AC<br>• CI (Cephalic Index)<br>• AFI (Amniotic Fluid Index)<br>• CTAR (Cardio-Thoracic Area Ratio) |

Measurements/calculations by: ASUM, ASUM 2001, Bahlmann, Baschat, Berkowitz, Bertagnoli, Brenner, Campbell, CFEF, Chitty, Ebbing, Eik-Nes, Ericksen, Goldstein, Hadlock, Hansmann, Hellman, Hill, Hohler, Jeanty, JSUM, Kurmanavicius, Kurtz, Mari, Mayden, Mercer, Merz, Moore, Nelson, Osaka Univ., Paris, Rempen, Robinson, Shepard, Shepard/Warsoff, Tokyo Univ., Tokyo/Shinozuka, WHO, Yarkoni

| |
|---|
| Fetal graphical trending |
| Growth percentiles |
| Multi-gestational calculations (4) |
| Fetal qualitative description (anatomical survey) |
| Fetal environmental description (biophysical profile) |
| Programmable OB tables |
| Over 20 selectable OB calcs |
| Expanded worksheets |
| Growth percentiles: Hadlock, Brenner, Williams, Kramer (f), Kramer (m) |
| **Measure Assistant Breast (Option)** |
| Allows automatic contour and measurement of breast lesions in a user selected ROI |
| Feature assessment |
| BI-RADS® assessment |
| User editable |
| **Measure Assistant OB (Option)** |
| Allows automatic measurement of BPD, HC, FL and AC |
| User editable |
| **GYN Measurements/Calculations** |
| Right ovary length, width, height |
| Left ovary length, width, height |
| Uterus length, width, height |
| Cervix length, trace |
| Ovarian volume |
| ENDO (Endometrial thickness) |
| Ovarian RI |
| Uterine RI |
| Follicular measurements |

IOTA (International Ovarian Tumor Analysis) LR2 worksheet

*Note) IOTA is not available in USA, Japan and China.*

| Summary reports |
| --- |
| **Vascular Measurements/Calculations** |
| SYS DCCA (Systolic Distal Common Carotid Artery) |
| DIAS DCCA (Diastolic Distal Common Carotid Artery) |
| SYS MCCA (Systolic Mid Common Carotid Artery) |
| DIAS MCCA (Diastolic Mid Common Carotid Artery) |
| SYS PCCA (Systolic Proximal Common Carotid Artery) |
| DIAS PCCA (Diastolic Proximal Common Carotid Artery) |
| SYS DICA (Systolic Distal Internal Carotid Artery) |
| DIAS DICA (Systolic Distal Internal Carotid Artery) |
| SYS MICA (Systolic Mid Internal Carotid Artery) |
| DIAS MICA (Diastolic Mid Internal Carotid Artery) |
| SYS PICA (Systolic Proximal Internal Carotid Artery) |
| DIAS PICA (Diastolic Proximal Internal Carotid Artery) |
| SYS DECA (Systolic Distal External Carotid Artery) |
| DIAS DECA (Diastolic Distal External Carotid Artery) |
| SYS PECA (Systolic Proximal External Carotid Artery) |
| DIAS PECA (Diastolic Proximal External Carotid Artery) |
| VERT (Systolic Vertebral Velocity) |
| SUBCLAV (Systolic Subclavian Velocity) |
| Auto IMT |
| Summary reports |
| **Urological Measurements/Calculations** |
| Bladder volume |
| Prostate volume |
| Left/right renal volume |
| Generic volume |
| Post-void bladder volume |
| **Cardiac Measurements/Calculations** |
| Cardiac calculation package including extensive measurements and display of multiple repeated measurements |
| Parameter annotation follow ASE standard |
| **My Trainer+** |
| An electric manual for first time user for the system |
| Available self-setup system |
| System setup |
| Maintenance |
| Ergonomics |
| Basic operation (button/layout/touch panel layout/monitor layout/basic workflow) |
| **My Page** |
| Collection of user's favorite parameters from measurement/comments/body patterns |
| Programmable buttons |
| Measurement for B/M/Doppler |
| User defined annotation for selected exam category |
| Body pattern for the selected exam category |
| Function Available Arrow; Create Macro, Eject, Grab Last, Help, Home, My Trainer, Set Home. Spooler, Text Overlay, Word Delete |

## Offline Scanning

Normal scanning with battery

Indication/message

Battery capacity

Battery operation

Power assistant in low battery

# Probes

## Probes

C1-6-D, C2-7-D, 10C-D, C1-5-RS, 8C-RS, E8C-RS, E8CS-RS, BE9CS-RS, 9L-RS, 12L-RS, L8-18i-RS, L6-12-RS, L4-12t-RS, L10-22-RS, L3-9i-RS, ML6-15-RS, 3Sc-RS, 6S-RS, 12S-RS, RAB2-6-RS, RIC5-9A-RS, P6D, P8D, L3-12-RS, IC9-RS, 6Tc-RS, P2D

## C1-5-RS Convex Probe

Applications: Abdomen, Vascular, OB/GYN, Urology

Probe band width: 1 - 6 MHz

Number of element: 192

Convex radius: 55 mmR

FoV (max): 70°

Physical foot print: 67 x 11.5 mm

B-Mode frequency: 2, 3, 4 MHz

Harmonic frequency: 3, 4, 5 MHz

Doppler frequency: 1.9, 2.1, 2.5, 3.6 MHz

Biopsy guide: multi-angle, disposable with a reusable bracket (40432LE)

## C1-6-D Convex Probe

Applications: Abdomen, OB, Gynecology, Vascular, Urology

Probe band width: 1 - 6 MHz

Number of element: 192

Convex radius: 55 mmR

FoV (max): 70°

Physical foot print: 67.2 x 11.5 mm

B-Mode frequency: 2, 3, 4, 5, 6 MHz

Harmonic frequency: 1.5, 2.5, 2.8, 3, 4, 5, 6 MHz

Doppler frequency: 1.7, 1.9, 2.1, 2.5, 3.1, 3.6 MHz

Biopsy guide: multi-angle, disposable with a reusable bracket (H4913BB)

## C2-7-D Convex Probe

Applications: Abdomen

Probe band width: 1 - 6 MHz

Number of element: 144

Convex radius: 19.74 mmR

FoV (max): 110°

Physical foot print: 29.7 x 10.5 mm

B-Mode frequency: 2.5, 4, 5, 6 MHz

Harmonic frequency: 3, 4, 5, 6 MHz

Doppler frequency: 2.1, 2.5, 3.6, 4.2 MHz

Biopsy guide: multi-angle, disposable with a reusable bracket (H40482LK)or a reusable stainless bracket (H40482LK)

## 10C-D Convex Probe

Applications: Neonatal, Pediatrics, Vascular

Probe band width: 4 – 12 MHz

Number of element: 128

Convex radius: 10 mmR

FoV (max): 102°

Physical foot print: 17.9 x 4.8 mm

B-Mode frequency: 4, 6, 8, 10 MHz

Harmonic frequency: 7, 8, 9, 10 MHz

Doppler frequency: 4.2, 5.0, 6.3, 7.4, 8.3 MHz

Biopsy guide: none

## 8C-RS Micro Convex Probe

Applications: Neonatal, Pediatrics

Probe band width: 3 - 11 MHz

Number of element: 128

Convex radius: 10.7 mmR

FoV (max): 132°

Physical foot print: 24.7 x 5 mm

B-Mode imaging frequency: 6.0, 7.0, 8.0 MHz

Harmonic frequency: 8.0, 9.0, 10.0 MHz

Doppler frequency: 3.6, 4.2, 5.0, 6.3 MHz

Biopsy guide: none

## E8C-RS Endo Micro Convex Probe

Applications: OB/GYN, Urology, Transvaginal, Transrectal

Probe band width: 3 - 11 MHz

Number of element: 128

Convex radius: 10.7 mmR

FoV (max): 132°

Physical foot print: 24.7 x 5 mm

B-Mode frequency: 6, 7, 8 MHz

Harmonic frequency: 8, 9, 10 MHz

Doppler frequency: 3.6, 4.2, 5.0, 6.3 MHz

Biopsy guide: single-angle, disposable with a disposable bracket (E8385MJ, E8333JB), single-angle, reusable bracket (H40412LN)

## E8CS-RS Endo Micro Convex Probe

Applications: OB/GYN (Transvaginal), Urology (Transrectal)

Probe band width: 3 - 11 MHz

Number of element: 128

Convex radius: 8.7 mmR

FoV (max): 168°

Active area: 25.6 x 4.3 mm

B-Mode frequency: 6, 7, 8 MHz

Harmonic frequency: 7, 8, 9, 10 MHz

Doppler frequency: 3.6, 4.2, 5.0, 6.3 MHz

Biopsy guide: single-angle, disposable with a disposable bracket (E8385MJ, E8333JB), single-angle, reusable bracket (H40412LN)

## IC9-RS Endo Micro Convex Probe

Applications : OB/GYN, Urology, (Transvaginal, Transrectal)

| | |
|---|---|
| Probe band width: 2 - 11 MHz | |
| Number of element: 192 | |
| Convex radius: 9.24 mmR | |
| FoV (max): 168° | |
| Physical foot print: 24.2 x 6 mm | |
| B-Mode frequency: 6, 7, 8 MHz | |
| Harmonic frequency: 7, 8, 9 MHz | |
| Doppler frequency: 3.6, 4.2, 5.0, 6.3 MHz | |
| Biopsy guide: single-angle, disposable with a disposable bracket (H48691YW), single-angle, reusable bracket (H48701MN) | |

### BE9CS-RS Biplane Micro Convex Probe

| | |
|---|---|
| Applications: Urology, Transrectal | |
| Probe band width: 3 - 12 MHz | |
| Number of element: 96 x 2 | |
| Convex radius: 9 mmR | |
| FoV (max): 127° | |
| Active area: 20.8 x 5 mm | |
| B-Mode frequency: 6, 8, 10 MHz | |
| Harmonic frequency: 8, 9, 10 MHz | |
| Doppler frequency: 4.2, 5.0, 6.3 MHz | |
| Biopsy guide: single-angle, reuseable (E8387MA), disposable (E8387M), disposable starter kit (H42742LH), disposable starter kit (H42742LJ) | |

### RAB2-6-RS Convex Volume Probe

| | |
|---|---|
| Applications: Abdomen, OB/GYN, Urology | |
| Probe band width: 1 - 5 MHz | |
| Number of element: 128 | |
| Convex radius: 47 mmR | |
| FoV (max): 66°, volume angle: 85° | |
| Physical foot print: 53.8 x 13 mm | |
| B-Mode frequency: 3, 4, 5 MHz | |
| Harmonic frequency: 4, 5, 6 MHz | |
| Doppler frequency: 1.9, 2.5, 3.1, 3.6 MHz | |
| Biopsy guide: multi-angle, disposal with reusable bracket (H48681ML) | |

### RIC5-9A-RS Convex Volume Probe

| | |
|---|---|
| Applications: OB/GYN, Urology, Endocavity | |
| Probe band width: 3 - 10 MHz | |
| Number of element: 192 | |
| Convex radius: 10.1 mmR | |
| FoV (max): 146°, volume angle: 120° | |
| Active area: 26.5 x 6 mm | |
| B-Mode frequency: 5, 7, 9 MHz | |
| Harmonic frequency: 7, 8, 9 MHz | |
| Doppler frequency: 3.6, 4.2, 5.0, 6.3 MHz | |
| Biopsy guide: single-angle, reusable bracket (H46721R), single-angle, disposable (H48681GF) | |

### ML6-15-RS Matrix Array Linear Probe

| | |
|---|---|
| Applications: Small Parts, Vascular, Pediatric, Neonatal, Musculoskeletal | |

Probe band width: 4 - 15 MHz

Number of element: >1000

FoV (max): 50.4 mm

Physical foot print: 50.4 x 6 mm

B-Mode frequency: 9, 11, 13, 15 MHz

Harmonic frequency: 8, 10, 12, 15 MHz

Doppler frequency: 5, 6.3, 8.3 MHz

Biopsy guide: multi-angle, disposable with a reusable bracket (H40432LJ)

## 12L-RS Linear Probe

Applications: Small Parts, Vascular, Pediatric, Neonatal, Musculoskeletal

Probe band width: 3 - 12 MHz

Number of element: 192

FoV (max): 38.4 mm

Physical foot print: 38.4 x 4 mm

B-Mode frequency: 7, 9, 11 MHz

Harmonic frequency: 9, 11, 12 MHz

Doppler frequency: 4.2, 5, 6.3, 8.3 MHz

Biopsy guide: Multi-angle, disposable with a reusable bracket (H40432LC)

## 9L-RS Linear Probe

Applications: Vascular, Small Parts, Pediatric, Abdomen

Probe band width: 2 - 8 MHz

Number of element: 192

FoV (max): 44.2 mm

Physical foot print: 44.2 x 6 mm

B-Mode frequency: 5, 7, 9 MHz

Harmonic frequency: 8, 9, 10 MHz

Doppler frequency: 3.1, 3.6, 4.2, 5 MHz

Biopsy guide: multi-angle, disposable with a reusable bracket (H4906BK)

## L6-12-RS Linear Probe

Applications: Small Parts, Vascular, Pediatric, Neonatal, Abdomen

Probe band width: 5 - 11 MHz

Number of element: 128

FoV (max): 38.4 mm

Physical foot print: 38.4 x 4 mm

B-Mode frequency: 7, 9, 11 MHz

Harmonic frequency: 9, 11, 12 MHz

Doppler frequency: 4.2, 5, 6.3, 8.3 MHz

Biopsy guide: multi-angle, disposable with a reusable bracket (H40432LC)

## L8-18i-RS Linear Probe

Applications: Small Parts, Vascular, Pediatric, Neonatal, Intraoperative(Not for China), Musculoskeletal

Probe band width: 4 - 15 MHz

Number of element: 168

FoV (max): 25.2 mm

Physical foot print: 25.2 x 4 mm

B-Mode frequency: 8, 9, 12, 15, 18 MHz

Harmonic frequency: 9, 15, 18 MHz

Doppler frequency: 5, 6.3, 8.3 MHz

Biopsy guide: none

## L4-12t-RS Linear Probe

Applications: Small Parts, Vascular, Pediatric, Neonatal, Musculoskeletal

Probe band width: 3 - 12 MHz

Number of element: 192

FoV (max): 38.4 mm

Active area: 38.4 x 4 mm

B-Mode frequency: 7, 9, 11 MHz

Harmonic frequency: 9, 11, 12 MHz

Doppler frequency: 4.2, 5, 6.3, 8.3 MHz

Biopsy guide: multi-angle, disposable with a reusable bracket (H40432LC), multi-angle, disposable with a reusable bracket (H48392LL), multi-angle, disposable with a reusable bracket (H48392LT)

## L10-22-RS Linear Probe

Applications: Small Parts, Neonatal, Musculoskeletal

Probe band width: 7 - 20 MHz

Number of element: 128

FoV (max): 12.8 mm

Active area: 12.8 x 1.5 mm

B-Mode frequency: 10, 12, 16, 20 MHz

Harmonic frequency: 16, 19, 22 MHz

Doppler frequency: 11.1, 12.5, 14.3 MHz

Biopsy guide: none

## L3-9i-RS Linear Probe

Applications: Small Parts, Vascular, Neonatal, Musculoskeletal, Intraoperative (Not for China)

Probe band width: 2 - 9 MHz

Number of element: 192

FoV (max): 38.4 mm

Active area: 38.4 x 4 mm

B-Mode frequency: 5, 7, 9 MHz

Harmonic frequency: 7, 8, 9, 10 MHz

Doppler frequency: 3.6, 4.2, 5 MHz

Biopsy guide: none

## L3-12-RS Linear Probe

Applications: Vascular, Small Parts, Neonatal,Pediatrics, Abdomen

Probe band width: 2 - 11 MHz

Number of element: 256

FoV (Max): 51.2 mm

Physical foot print: 51.2 x 5 mm

B-Mode frequency: 5.0, 7.0, 9.0, 11.0 MHz

Harmonic frequency: 8, 10, 12 MHz

Doppler frequency: 3.6, 4.2, 5, 6.3, 8.3 MHz

Biopsy guide: multi-angle, disposable with a reusable bracket (H48302AA)

**3Sc-RS Phased Array Sector Probe**

Applications: Cardiac, Transcranial, Abdomen

Probe band width: 1 - 5 MHz

Number of element: 64

FoV (max): 120°

Physical foot print: 15 x 14 mm

B-Mode frequency: 2, 3, 4 MHz

Harmonic frequency: 3, 3.5, 4.0, 5.0 MHz

Doppler frequency: 1.7, 2.1, 2.5, 3.1, 3.6 MHz

Biopsy guide: multi-angle, reusable bracket (H46222LC)

**6S-RS Phased Array Sector Probe**

Applications: Cardiac Neonatal, Pediatric

Probe band width: 2 - 8 MHz

Number of element: 64

FoV (max): 90°

Physical foot print: 10.2 x 5.5 mm

B-Mode frequency: 4, 5, 6.5, 8 MHz

Harmonic frequency: 4.8, 5.4, 6.2 MHz

Doppler frequency: 2.8, 3.1, 3.6, 4.2, 5.0 MHz

Biopsy guide: none

**12S-RS Phased Array Sector Probe**

Applications: Pediatric, Neonatal

Probe band width: 4 - 12 MHz

Number of element: 96

FoV (max): 90°

Active area: 9.3 x 5.5 mm

B-Mode frequency: 7, 8, 9 MHz

Harmonic frequency: 7, 8, 9 MHz

Doppler frequency: 5.0, 6.3 MHz

Biopsy guide: none

**P8D CW Split Crystal Probe**

Applications: Cardiac, Vascular

**P6D CW Split Crystal Probe**

Applications: Cardiac, Vascular

**P2D CW Split Crystal Probe**

Applications: Cardiac, Vascular

**6Tc-RS TEE Sector (Trans-esophageal) Probe**

Applications : Cardiac (Transesophageal)

Probe band width: 2 - 8 MHz

Number of element: 64

FoV (Max): 90°

Physical foot print: 14 x 12 mm

B-Mode frequency: 6.0, 7.0, 8.0 MHz

Harmonic frequency: 6 MHz

Doppler frequency: 2.8, 3.1, 3.6, 4.2, 5 MHz

Biopsy guide: none

| **Inputs and Outputs** | |
| --- | --- |
| HDMI out | |
| Ethernet network (RJ45) | |
| External audio out | |
| USB ports | • OPIO Ext USB3.0 x 2 pcs <br> • Monitor USB2.0 x 2 pcs <br> • Rear USB2.0 x 3 pcs |
| AC power input | |
| Probe connectors | |

## Regulatory and Standard

### Safety Conformance

The LOGIQ P9 is:

• Classified to ANSIAAMI ES60601-1 2005 R1 2012 Medical Electrical Equipment, Part 1: General Requirements for Safety by a Nationally Recognized Test Lab

• Certified to CSA CAN/CSA-C22.2 NO. 60601-1 :14 General requirements for safety

• CE Marked to Council Directive 93/42/EEC on Medical Devices Conforms to the following standards for safety:

• IEC/EN 60601-1 3.1 Edition. Medical electrical equipment – Part 1: General requirements for basic safety and essential performance

• IEC/EN 60601-1-2 Medial electrical equipment – Part 1-2: General requirements for safety Collateral Standard: Electromagnetic compatibility – requirements and tests

• IEC/EN 60601-1-6 Medical electrical equipment Part 1 -6: General requirements for basic safety and essential performance – Collateral Standard: Usability

• IEC/EN 60601-2-37 Medical electrical equipment – Part 2-37: Particular requirements for the safety of ultrasonic medical diagnostic and monitoring equipment

• IEC 61157 (Standard means for the reporting of the acoustic output of medical diagnostic ultrasonic equipment)

• IEC/EN 62366 Application of usability engineering to medical devices

• IEC/EN 62304 Software Life Cycle Processes

• IEC/EN 62359 Ultrasonic - Field characterization - Test methods for the determination of thermal and mechanical indices related to medical diagnostic ultrasonic fields

• EN ISO 15223-1: Symbols to be used with medical device labels, labelling and information to be supplied

• ISO 10993-1 Biological evaluation of medical devices – Part 1 Evaluation and testing
• ISO14971:2012(Medical devices - Application of risk management to medical devices)
• EMC Emissions Group 1, class A, Class B device requirements as per Sub clause 4.2 of CISPR 11
• WEEE (Waste Electrical and Electronic Equipment)
• ROHS according to 2011/65/EU Including national deviations
• Wireless equipment shall be certified to FCC, RED and Japan Radio Law
• Medical Device Good Manufacturing Practice Manual issued by the FDA (Food and Drug Administration, Department of Health, USA).

# Expanded Patient-Centric
## Diagnostic Capabilities…for Flexibility

Equipped with a robust set of advanced features, the LOGIQ P9 XDclear system gives you the flexibility to manage simple to complex cases.

**Multi-purpose capabilities** to perform a wide range of exams, including liver, cardiac, OB/GYN, vascular, breast, thyroid, musculoskeletal, urologic, and pediatric studies.

**Superb image quality with XDclear probes:** Powerful high fidelity and broad bandwidth produce high resolution images whether scanning superficial or deep targets — or at any point in between. New probes include C2-7-D, 10C-D, and C1-6-D.



**Advanced imaging and visualization tools,** including:

- B-Flow and B-Flow Color

- HD Color

- 3D/4D with SonoRender*live*

- HD*live*™

- STIC/Omniview

- 2D Shear Wave
  Elastography with Quality Indicator and Anatomical Site Reporting

- Strain Elastography

- Stress Echo

- TVI/TVD

- Cardiac Strain

- Raw Data

- Enhanced B-Steer+

- CEUS

- Ultrasound-Guided
  Attenuation Parameter (UGAP)

**Sursa:** https://ge-ultrasound.eu/md/logiq-general-imaging/logiq-p9-xdclear/

gehealthcare.com

# LOGIQ™ P9 XDclear™

MAKE IT EASY. MAKE IT YOUR OWN.

# PERSONALIZED
## workflow tools and automation…for efficiency

The new LOGIQ P9 XDclear ultrasound system brings you advanced ways to increase everyday efficiency — tools and functions you can customize to your own preferences so exams flow easily, your way.

*Intuitive user interface* – With customizable keys, joystick, and touch control, the system operates intuitively, enabling you to complete exams with fewer keystrokes. It's the ergonomics you've come to expect from LOGIQ design.

*Personalized set-up tools* – With Start Assistant and My Preset, users can customize their own workflow preferences and use case presets, and then launch these settings in seconds.

*Automated scanning tools* – Continuous Tissue Optimization (CTO), Auto IMT, AutoEF, Measure Assistant, Compare Assistant, and Scan Assistant help reduce exam time and increase user efficiency.

*AI-based tools* – The LOGIQ P9 XDclear system harnesses artificial intelligence for imaging standardization and speed with Auto Lesion Segmentation, OB Measurement Assistant, Auto Doppler Assistant, and Breast Assistant, powered by Koios DS.™*
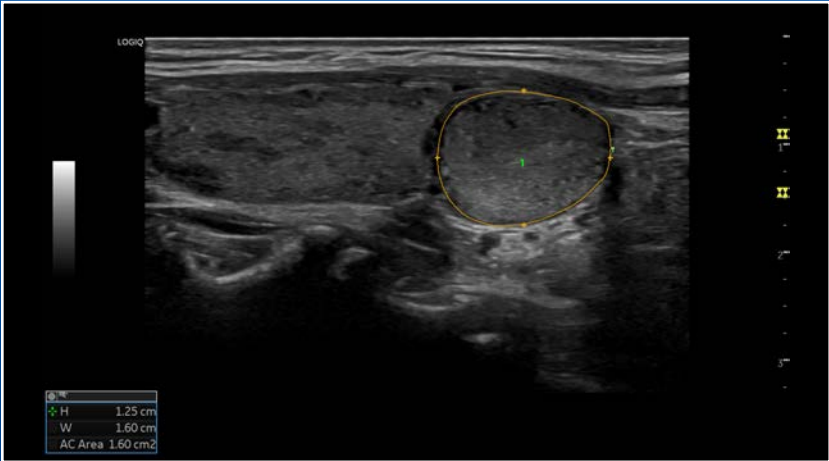
*Excellent mobility* – Trim and lightweight, the LOGIQ P9 XDclear system is easy to transport. Available Power Assistant with Extended Battery enables up to one hour of offline scanning.
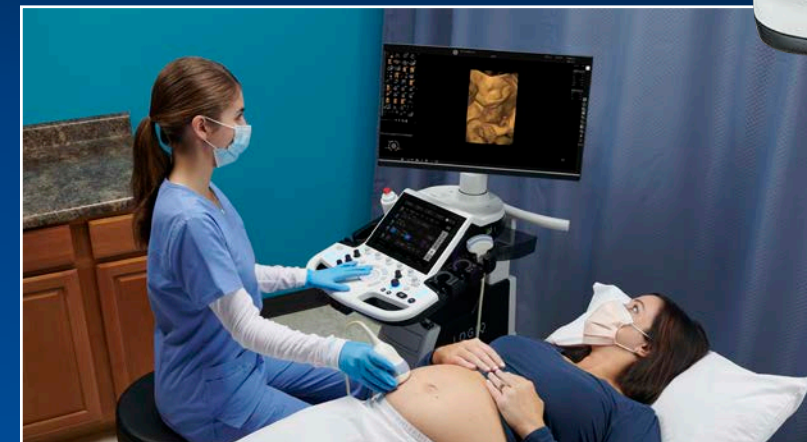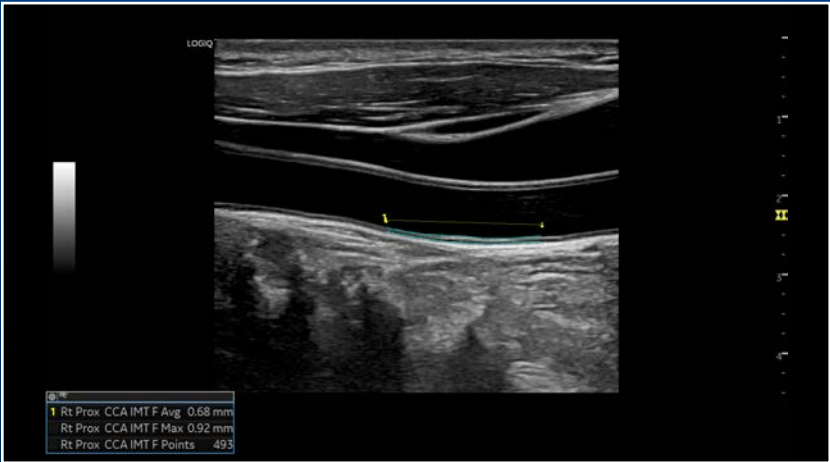
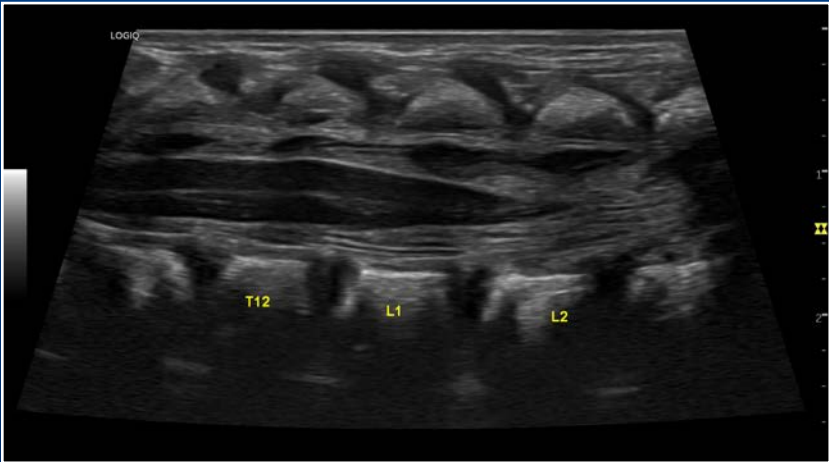# Expanded PATIENT-CENTRIC diagnostic capabilities...for flexibility
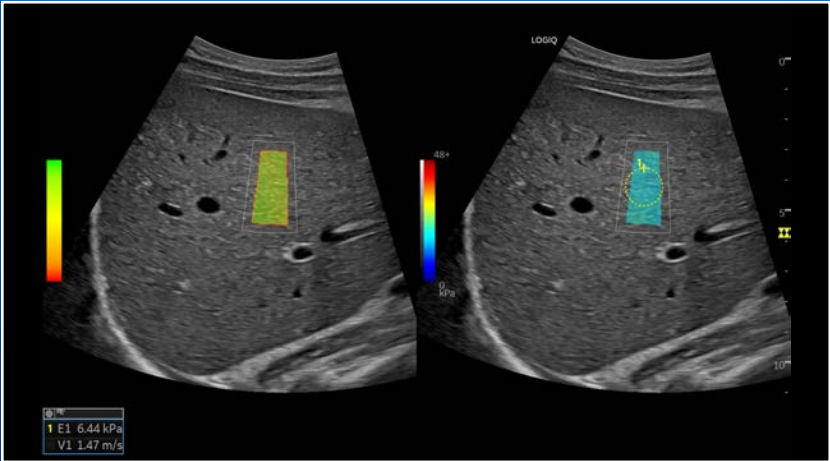


2D Shear Wave Elastography with Quality Indicator Liver, C1-6-D
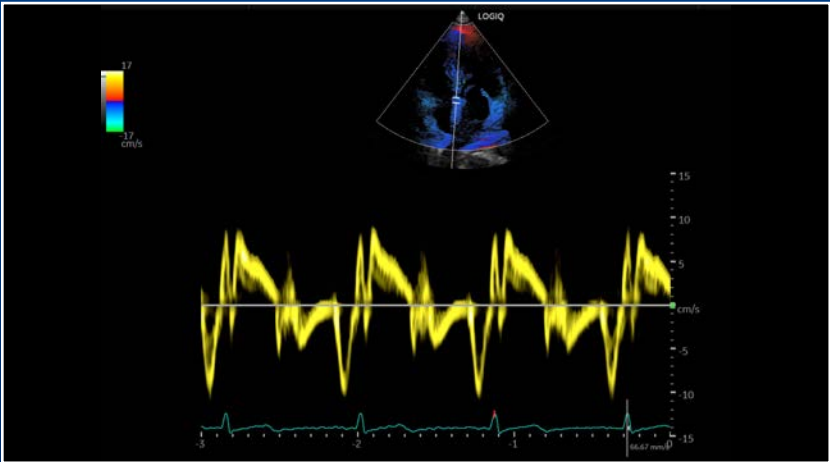


Auto Lesion Segmentation Thyroid, ML6-15-RS



B-Flow™ HD Color Fetal Abdomen, C1-5-RS



IMT Measurement Carotid, L3-12-RS



Neonatal Spine B-Mode, 12L-RS



TVI TVD, 3Sc-RS

Equipped with a robust set of advanced features, the LOGIQ P9 XDclear system gives you the flexibility to manage simple to complex cases.

*Multi-purpose capabilities* to perform a wide range of exams, including liver, cardiac, OB/GYN, vascular, breast, thyroid, musculoskeletal, urologic, and pediatric studies.

*Superb image quality with XDclear probes:* Powerful high fidelity and broad bandwidth produce high resolution images whether scanning superficial or deep targets — or at any point in between. New probes include C2-7-D, 10C-D, and C1-6-D.

*Advanced imaging and visualization tools,* including:

- B-Flow and B-Flow Color
- HD Color
- 3D/4D with SonoRender*live*
- HD*live*™
- STIC/Omniview
- 2D Shear Wave Elastography with Quality Indicator and Anatomical Site Reporting
- Strain Elastography
- Stress Echo
- TVI/TVD
- Cardiac Strain
- Raw Data
- Enhanced B-Steer+
- CEUS
- Ultrasound-Guided Attenuation Parameter (UGAP)

# POWERFUL support...
## for long-term value

The LOGIQ P9 XDclear system gives you access to industry-leading cybersecurity, data management, and educational resources to help you optimize system uptime and utilization, while enhancing user skills.

**SonoDefense** – Built on the Windows® 10 IoT operating system, SonoDefense provides multi-layer cybersecurity to protect system integrity and patient data privacy.

**My Trainer** – Self-training modules — available on-board, online or in the app — help new users become proficient quickly.

**LOGIQ Club** – Provides on-demand educational resources for continuous learning and enables users to share best practices.

**Data management tools** – Easy data migration supported by DICOM® and cloud-based image collection with anonymization.

**Purchasable service agreements** – Including options for remote service capabilities.

# ADVANCED features. Everyday affordability.

**Power Assistant with Extended Battery** – Up to one hour of offline scanning

**Photo Assistant App** – Acquire and send photos of relevant anatomy from an Android™ device for documentation and comparison after a procedure

**Remote Control App** – Operate the system from an Android phone or tablet

**My Preset** – Customize your own presets for each probe

**Volume Navigation Import** – Easily view a prior ultrasound, mammography, CT or MR image and current images side-by-side in real time via a split screen on the monitor

**AI-Based Tools** – Including Auto Lesion Segmentation, OB Measurement Assistant, and Auto Doppler Assistant

**2D Shear Wave Elastography** – Quantitative measurement of tissue elasticity displayed in color-coded elastograms, with Quality Indicator and Anatomical Site Reporting

**SonoDefense Security** – Protect your system in the face of cyberthreats and guard patient data from unauthorized access
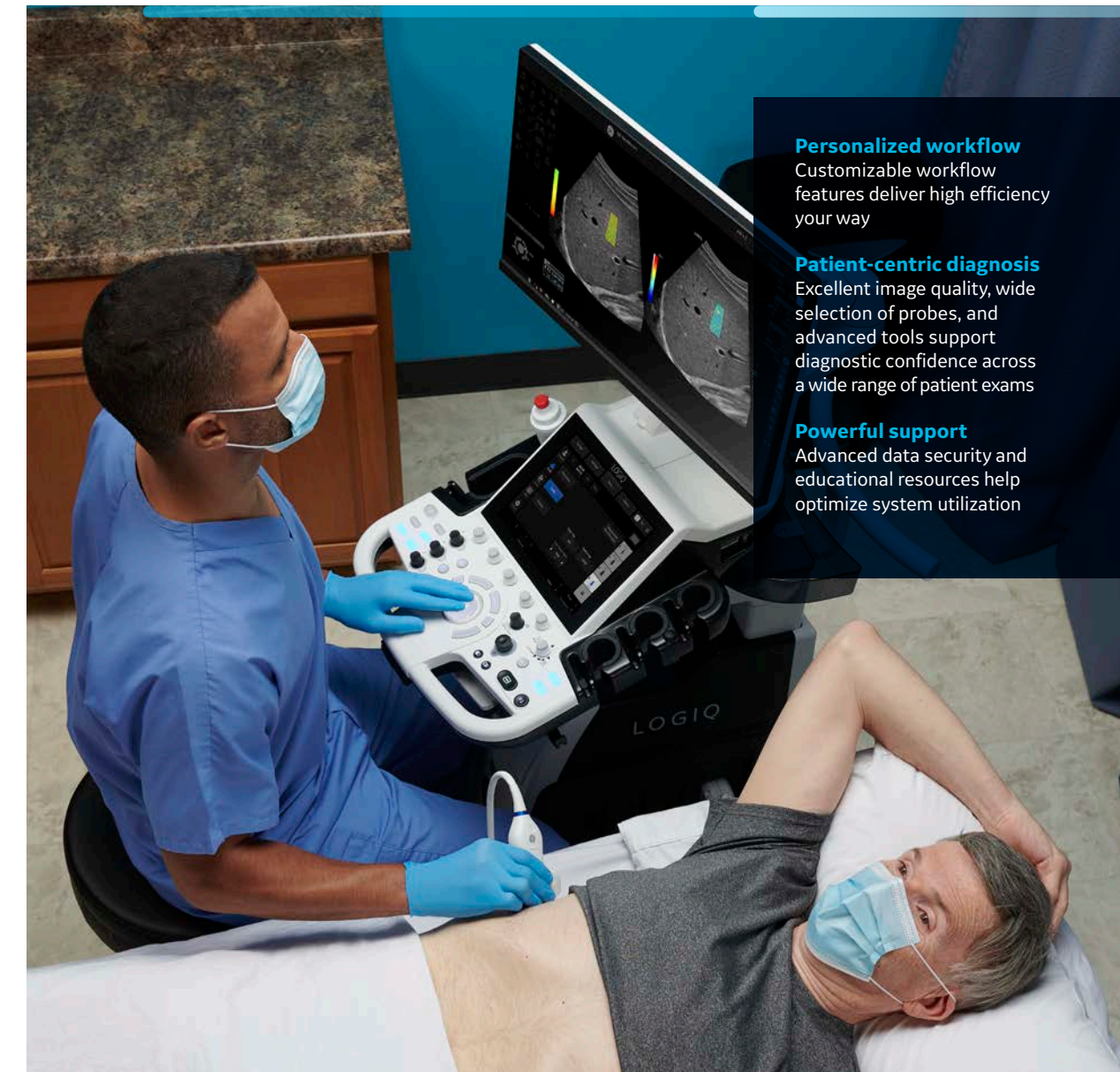
**Personalized workflow**
Customizable workflow features deliver high efficiency your way

**Patient-centric diagnosis**
Excellent image quality, wide selection of probes, and advanced tools support diagnostic confidence across a wide range of patient exams

**Powerful support**
Advanced data security and educational resources help optimize system utilization

Product may not be available in all countries and regions. Full product technical specification is available upon request. Contact a GE Healthcare Representative for more information. Please visit www.gehealthcare.com/promotional-locations.

Data subject to change.

March 2021  JB03033XX

# LOGIQ™ P9 XDclear™

## Probe Guide

The LOGIQ P9 XDclear is a highly capable ultrasound system that provides excellent image quality and productivity through easy-to-use tools across a wide range of applications in a portable, ergonomic, budget-friendly system design.

gehealthcare.com

| | Description | Applications | FOV | Bandwidth | Biopsy Guide |
|---|---|---|---|---|---|
| **Convex Array** | | | | | |
| C1-5-RS H40462LA | Wideband convex array probe | Abdomen, OB/GYN, Urology, Vascular | 70° | 1 – 6 MHz | Multi-angle, disposable with a reusable bracket (H40432LE) |
| C1-6-D | Broad-spectrum convex probe | Abdominal, Obstetrics, Gynecology | 70° | 1 – 6 MHz | Multi-angle, disposable with a reusable bracket (H4913BB) |
| C2-7-D | Broad-spectrum micro-convex biopsy probe | Abdominal | 110° | 1 – 6 MHz | Multi-angle, disposable with a reusable bracket (H40482LK)or a reusable stainless bracket (H40482LK) |
| **Micro-convex Array** | | | | | |
| 8C-RS H40402LS | Wideband micro-convex array probe | Neonatal, Pediatrics | 132° | 3 – 11 MHz | No |
| 10C-D | Broad-spectrum micro-convex probe | Neonatal, Pediatrics, Vascular | 102° | 4 – 12 MHz | No |
| E8C-RS H40402LN | Wideband micro-convex intra-cavitary array probe | OB/GYN, Urology, Endocavity | 132° | 3 – 11 MHz | Single-angle, disposable with a disposable bracket (E8385MJ, E8333JB), Single-angle, reusable bracket (H40412LN) |
| E8Cs-RS H48062AF | Wideband micro-convex intra-cavitary array probe | OB/GYN, Urology, Endocavity | 168° | 3 – 11 MHz | Single-angle, disposable with a disposable bracket (E8385MJ, E8333JB), single-angle, reusable bracket (H40412LN) |
| IC9-RS H48691PJ | Wideband micro-convex intracavity array probe | OB/GYN, Urology, Endocavity | 168° | 2 – 11 MHz | Single-angle, disposable with a disposable bracket (H48691YW), Single-angle, reusable bracket (H48701MN) |
| BE9CS-RS H40482LN | Wideband micro-convex intra-cavitary bi-plane array probe | Urology, Transrectal | 127° x 2 | 3 – 12 MHz | Single-angle, reusable (E8387MA), disposable (E8387M), disposable starter kit (H42742LH), disposable starter kit (H42742LJ) |

| | Description | Applications | FOV | Bandwidth | Biopsy Guide |
|---|---|---|---|---|---|
| **Linear Array** | | | | | |
| ML6-15-RS H40462LM | Wideband linear matrix array probe | Small Parts, Vascular, Neonatal, Pediatrics, Musculoskeletal | 50 mm | 4 – 15 MHz | Multi-angle, disposable with a reusable bracket (H40432LJ) |
| L3-12-RS H44901AP | Wideband Linear Array Probe | Vascular, Small Parts, Neonatal, Pediatrics, Abdomen | 51.2 mm | 2 – 11 MHz | Multi-angle, disposable with a reusable bracket (H48032AA) |
| L10-22-RS H48312AH | Wideband linear array probe | Small Parts, Neonatal, Musculoskeletal | 13 mm | 7 – 20 MHz | No |
| 12L-RS H40402LY | Wideband linear array probe | Small Parts, Vascular, Pediatrics, Neonatal, Musculoskeletal | 38 mm | 3 – 12 MHz | Multi-angle, disposable with a reusable bracket (H40432LC), transverse disposable with a reusable bracket (H48392LL), infinite angle disposable with a reusable bracket (H48392LT) |
| L4-12t-RS H48062AB | Wideband linear array probe | Small Parts, Vascular, Pediatric, Neonatal, Musculoskeletal | 38 mm | 3 – 12 MHz | Multi-angle, disposable with a reusable bracket (H40432LC), multi-angle, disposable with a reusable bracket (H48392LL), multi-angle, disposable with a reusable bracket (H48392LT) |
| 9L-RS H40442LL | Wideband linear array probe | Vascular, Small Parts, Pediatrics, Abdomen | 44 mm | 2 – 8 MHz | Multi-angle, disposable with a reusable bracket (H4906BK) |
| L6-12-RS H48062AC | Wideband linear array probe | Small Parts, Vascular, Pediatrics, Neonatal, Abdomen | 38.4 mm | 5 – 11 MHz | Multi-angle, disposable with a reusable bracket (H40432LC) |
| L8-18i-RS H40462LF | Wideband linear array probe | Small Parts, Vascular, Pediatrics, Neonatal, Intraoperative | 25 mm | 4 – 15 MHz | No |
| L3-9i-RS H46442LK | Wideband linear array probe | Small Parts, Vascular, Musculoskeletal, Intraoperative | 38 mm | 2 – 9 MHz | No |

| Description | Applications | FOV | Bandwidth | Biopsy Guide |
|---|---|---|---|---|
| **Sector Array** | | | | |
| Wideband sector array probe<br>3Sc-RS<br>H45041DL | Cardiac, Abdomen, Transcranial | 120° | 1 – 5 MHz | Multi-angle, disposable with a reusable bracket (H46222LC) |
| Wideband sector array probe<br>6S-RS<br>H45021RP | Cardiac, Neonatal, Pediatric | 90° | 2 – 8 MHz | No |
| Wideband sector array probe<br>12S-RS<br>H44901AB | Pediatric, Neonatal | 90° | 4 – 12 MHz | No |
| TEE probe<br>6Tc-RS<br>H45551ZE | Cardiac | 90° | 2 – 8 MHz | No |
| **Real-time 4D** | | | | |
| Wideband real-time 4D probe<br>RAB2-6-RS<br>H48681WR | Abdomen, OB/GYN, Urology | 66° (B), 85° (Volume scan) | 1 – 5 MHz | Multi-angle, disposable with a reusable bracket (H48681ML) |
| Wideband real-time 4D intra-cavitary probe<br>RIC5-9A-RS<br>H48701EJ | Endocavity, OB/GYN, Urology | 146° (B) 120° (Volume angle) | 3 – 10 MHz | Single-angle, reusable bracket (H46721R), Single-angle, disposable (H48681GF) |
| **Specialty** | | | | |
| CW split crystal pencil probe<br>P8D<br>H46312LZ | Cardiac, Vascular | N/A | 8 MHz | No |
| CW split crystal pencil probe<br>P6D<br>H4830JG | Cardiac, Vascular | N/A | 6 MHz | No |
| CW split crystal pencil probe<br>P2D<br>H4830JE | Cardiac, Vascular | N/A | 2 MHz | No |

# Technical
# Publications

**Direction DOC2510132**
**Revision 1**

# LOGIQ P8/P9/P10 R4.x
# DICOM CONFORMANCE STATEMENT

**Do not duplicate**

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# CONFORMANCE STATEMENT OVERVIEW

LOGIQ P8/P9/P10 is an Ultrasound Scanner acting as an acquisition modality in a DICOM network. LOGIQ P8/P9/P10 Product is compliance to DICOM 3.0.

Table 0.1 provides an overview of the network services supported by LOGIQ P8/P9/P10 scanner.

**Table 0.1 – NETWORK SERVICES**

| SOP Classes | User of Service (SCU) | Provider of Service (SCP) |
|---|---|---|
| **Transfer** | | |
| Ultrasound Image Storage | Yes | Yes |
| Ultrasound Image Storage (Retired) | Yes | Yes |
| Ultrasound Multi-frame Image Storage | Yes | Yes |
| Ultrasound Multi-frame Image Storage (Retired) | Yes | Yes |
| Enhanced US Volume Storage | Yes | Yes |
| Secondary Capture Image Storage | Yes | Yes |
| Comprehensive SR | Yes | No |
| Key Object Selection Document | Yes | No |
| Verification SOP Class | Yes | Yes |
| CT Image Storage | Yes | Yes |
| MR Image Storage | Yes | Yes |
| Positron Emission Tomography Image Storage | Yes | Yes |
| Digital Mammography X-Ray Image Storage – For Presentation | Yes | Yes |
| Digital Mammography X-Ray Image Storage – For Processing | Yes | Yes |
| X-Ray Angiographic Image Storage | Yes | Yes |
| **Query/Retrieve** | | |
| Study Root Query/Retrieve Information Model – FIND | Yes | No |
| Study Root Query/Retrieve Information Model – MOVE | Yes | No |
| **Print Management** | | |
| Basic Grayscale Print Management Meta SOP Class | Yes | No |
| Basic Color Print Management Meta SOP Class | Yes | No |
| Basic Annotation Box | Yes | No |
| Printer SOP Class | Yes | No |
| Basic Film Session SOP Class | Yes | No |
| Basic Film Box SOP Class | Yes | No |
| Basic Grayscale Image Box SOP Class | Yes | No |
| Basic Color Image Box SOP Class | Yes | No |

| Workflow Management | | |
|---|---|---|
| Storage Commitment Push Model SOP Class | Yes | No |
| Modality Performed Procedure Step SOP Class | Yes | No |
| Modality Worklist Information Model – FIND SOP Class | Yes | No |

Table 0.2 provides an overview of the Media Storage Application Profiles supported by LOGIQ P8/P9/P10 scanner.

**Table 0.2 - MEDIA SERVICES**

| Media Storage Application Profile | Write Files (FSC or FSU) | Read Files (FSR) |
|---|---|---|
| **Compact Disk - Recordable** | | |
| General Purpose CD-R | Yes | Yes |
| **DVD** | | |
| General Purpose DVD Interchange with JPEG | Yes | Yes |
| General Purpose DVD Interchange with JPEG 2000 | Yes | Yes |
| **USB** | | |
| General Purpose USB Media Interchange with JPEG | Yes | Yes |
| General Purpose USB Media Interchange with JPEG 2000 | Yes | Yes |

# TABLE OF CONTENTS

# 1. INTRODUCTION

## 1.1 OVERVIEW

This DICOM Conformance Statement is divided into Sections as described below:

**Section 1 (Introduction),** which describes the overall structure, intent, and references for this Conformance Statement

**Section 2 (Network Conformance Statement),** which specifies the GEHC equipment compliance to the DICOM requirements for the implementation of Networking features.

**Section 3 (Media Storage Conformance Statement),** which specifies the GEHC equipment compliance to the DICOM requirements for the implementation of Media Storage features.

**Section 4 (Ultrasound Image Information Object Implementation),** which specifies the GEHC equipment compliance to DICOM requirements for the implementation of an Ultrasound Image Information Object.

**Section 5 (Ultrasound Multi-Frame Image Information Object Implementation),** which specifies the GEHC equipment compliance to DICOM requirements for the implementation of an Ultrasound Multi-Frame Image Information.

**Section 6 (Enhanced US Volume Information Object Implementation),** which specifies the GEHC equipment compliance to DICOM requirements for the implementation of an Enhanced US Volume Information.

**Section 7 (Secondary Capture Object Implementation**), which specifies the GEHC equipment compliance to DICOM requirements for the implementation of a Secondary Capture Information Object.

**Section 8 (Comprehensive Structured Report Object Implementation**), which specifies the GEHC equipment compliance to DICOM requirements for the implementation of a Comprehensive Structured Reporting Information Object**.**

**Section 9 (Key Object Selection Document Implementation**), which specifies the GEHC equipment compliance to DICOM requirements for the implementation of a Key Object Selection Document Object.

**Section 10 (Modality Worklist Information Model),** which specifies the GEHC equipment compliance to DICOM requirements for the implementation of the Modality Worklist service.

**Section 11 (Modality Performed Procedure Step Implementation),** which specifies the GEHC equipment compliance to DICOM requirements for the implementation of Modality Performed Procedure Step Service.

**Section 12 (Storage Commitment Push Model SOP Implementation),** which specifies the GEHC equipment compliance to DICOM requirements for the implementation of the Storage Commitment Push Model Service.

**Section 13 (Basic Directory Information Object Implementation**), which specifies the GEHC equipment compliance to DICOM requirements for the implementation of a Basic Directory Information Object**.**

**Section 14 (Print Management),** which specifies the GEHC equipment compliance to DICOM requirements for the implementation of Basic Print Meta SOP Classes (Gray and Color).

**Section 15 (Study Root Query/Retrieve Information Model),** which specifies the GEHC equipment compliance to DICOM requirements for the Study Root Query/Retrieve Information Model.

**Section 16 (DICOM SR Templates),** which specifies all LOGIQ P8/P9/P10 scanner supported DICOM SR Templates.

**1.2  OVERALL DICOM CONFORMANCE STATEMENT DOCUMENT STRUCTURE**

The Documentation Structure of the GEHC DICOM Conformance Statements is shown in the Illustration below.

**GEHC DICOM Conformance Statements**

@

http://www.ge.com/DICOM

**APPLICATION ENTITY SPECIFICATION**
(SERVICE CLASSES, INFORMATION OBJECTS, MESSAGE EXCHANGES, ETC.)

**Product
Implementation:**

CT Advantage

MR Advantage

**LOGIQ P8/P9/P10 R4**
Conformance
Statement
Direction:
DOC2510132

......
Conformance
Statement
Direction:
......

**DICOM STANDARD**

**Standard
Specification:**

DICOM
Part 1

DICOM
Part 16

This document specifies the DICOM implementation. It is entitled:

> **LOGIQ P8/P9/P10 R4**
> *Conformance Statement for DICOM*
> *Direction* **DOC2510132**

This DICOM Conformance Statement documents the DICOM Conformance Statement and Technical Specification required to interoperate with the GEHC network interface.

The GEHC Conformance Statement, contained in this document, also specifies the Lower Layer communications which it supports (e.g., TCP/IP). However, the Technical Specifications are defined in the DICOM Part 8 standard.

For more information regarding DICOM, copies of the Standard may be obtained on the Internet at http://medical.nema.org. Comments on the Standard may be addressed to:

> DICOM Secretariat
> NEMA
> 1300 N. 17th Street, Suite 1752
> Rosslyn, VA 22209
> USA
> Phone: +1.703.841.3200

## 1.3  INTENDED AUDIENCE

The reader of this document is concerned with software design and/or system integration issues. It is assumed that the reader of this document is familiar with the DICOM Standard and with the terminology and concepts which are used in that Standard.

## 1.4  SCOPE AND FIELD OF APPLICATION

It is the intent of this document to provide an unambiguous specification for GEHC implementations. This specification, called a Conformance Statement, includes a DICOM Conformance Statement and is necessary to ensure proper processing and interpretation of GEHC medical data exchanged using DICOM. The GEHC Conformance Statements are available to the public.

The reader of this DICOM Conformance Statement should be aware that different GEHC devices are capable of using different Information Object Definitions. For example, a GEHC CT Scanner may send images using the CT Information Object, MR Information Object, Secondary Capture Object, etc.

Included in this DICOM Conformance Statement are the Module Definitions which define all data elements used by this GEHC implementation. If the user encounters unspecified private data elements while parsing a GEHC Data Set, the user is well advised to ignore those data elements (per the DICOM standard). Unspecified private data element information is subject to change without notice. If, however, the device is acting as a "full fidelity storage device", it should retain and re-transmit all of the private data elements which are sent by GEHC devices.

## 1.5  IMPORTANT REMARKS

The use of these DICOM Conformance Statements, in conjunction with the DICOM Standards, is intended to facilitate communication with GE imaging equipment. However, **by itself, it is not sufficient to ensure that inter-operation will be successful**. The **user (or user's agent)** needs to proceed with caution and address at least four issues:

**Integration** - The integration of any device into an overall system of interconnected devices goes beyond the scope of standards (DICOM v3.0), and of this introduction and associated DICOM Conformance Statements when interoperability with non-GE equipment is desired. The responsibility to analyze the applications requirements and to design a solution that

integrates GE imaging equipment with non–GE systems is the **user's** responsibility and should not be underestimated. The **user** is strongly advised to ensure that such an integration analysis is correctly performed.

**Validation** - Testing the complete range of possible interactions between any GE device and non–GE devices, before the connection is declared operational, should not be overlooked. Therefore, the **user** should ensure that any non–GE provider accepts full responsibility for all validation required for their connection with GE devices. This includes the accuracy of the image data once it has crossed the interface between the GE imaging equipment and the non–GE device and the stability of the image data for the intended applications.

Such a validation is required before any clinical use (diagnosis and/or treatment) is performed. It applies when images acquired on GE imaging equipment are processed/displayed on a non-GE device, as well as when images acquired on non-GE equipment is processed/displayed on a GE console or workstation.

**Future Evolution** - GE understands that the DICOM Standard will evolve to meet the user's growing requirements. GE is actively involved in the development of the DICOM Standard. DICOM will incorporate new features and technologies and GE may follow the evolution of the Standard. The GEHC protocol is based on DICOM as specified in each DICOM Conformance Statement. Evolution of the Standard may require changes to devices which have implemented DICOM. **In addition, GE reserves the right to discontinue or make changes to the support of communications features (on its products) described by these DICOM Conformance Statements**. The **user** should ensure that any non–GE provider, which connects with GE devices, also plans for the future evolution of the DICOM Standard. Failure to do so will likely result in the loss of function and/or connectivity as the DICOM Standard changes and GE Products are enhanced to support these changes.

**Interaction** - It is the sole responsibility of the **non–GE provider** to ensure that communication with the interfaced equipment does not cause degradation of GE imaging equipment performance and/or function.

## 1.6 REFERENCES

NEMA PS3 Digital Imaging and Communications in Medicine (DICOM) Standard, available free at http://medical.nema.org/

## 1.7 DEFINITIONS

Informal definitions are provided for the following terms used in this Conformance Statement. The DICOM Standard is the authoritative source for formal definitions of these terms.

**Abstract Syntax** – the information agreed to be exchanged between applications, generally equivalent to a Service/Object Pair (SOP) Class. Examples: Verification SOP Class, Modality Worklist Information Model Find SOP Class, Computed Radiography Image Storage SOP Class.

**Application Entity (AE)** – an end point of a DICOM information exchange, including the DICOM network or media interface software; i.e., the software that sends or receives DICOM information objects or messages. A single device may have multiple Application Entities.

**Application Entity Title** – the externally known name of an *Application Entity*, used to identify a DICOM application to other DICOM applications on the network.

**Application Context** – the specification of the type of communication used between *Application Entities*. Example: DICOM network protocol.

**Association** – a network communication channel set up between *Application Entities*.

**Attribute** – – a unit of information in an object definition; a data element identified by a *tag*. The information may be a complex data structure (Sequence), itself composed of lower level data elements. Examples: Patient ID (0010,0020), Accession Number (0008,0050), Photometric Interpretation (0028,0004), Procedure Code Sequence (0008,1032).

**Information Object Definition (IOD)** – the specified set of *Attributes* that comprise a type of data object; does not represent a specific instance of the data object, but rather a class of similar data objects that have the same properties. The *Attributes* may be specified as Mandatory (Type 1), Required but possibly unknown (Type 2), or Optional (Type 3), and there may be conditions associated with the use of an Attribute (Types 1C and 2C). Examples: MR Image IOD, CT Image IOD, Print Job IOD.

**Joint Photographic Experts Group (JPEG) –** a set of standardized image compression techniques, available for use by DICOM applications.

**Media Application Profile** – the specification of DICOM information objects and encoding exchanged on removable media (e.g., CDs)

**Module** – a set of *Attributes* within an *Information Object Definition* that are logically related to each other. Example: Patient Module includes Patient Name, Patient ID, Patient Birth Date, and Patient Sex.

**Negotiation** – first phase of *Association* establishment that allows *Application Entities* to agree on the types of data to be exchanged and how that data will be encoded.

**Presentation Context** – the set of DICOM network services used over an *Association*, as negotiated between *Application Entities*; includes *Abstract Syntaxes* and *Transfer Syntaxes*.

**Protocol Data Unit (PDU)** – a packet (piece) of a DICOM message sent across the network. Devices must specify the maximum size packet they can receive for DICOM messages.

**Security Profile** – a set of mechanisms, such as encryption, user authentication, or digital signatures, used by an *Application Entity* to ensure confidentiality, integrity, and/or availability of exchanged DICOM data

**Service Class Provider (SCP)** – role of an *Application Entity* that provides a DICOM network service; typically, a server that performs operations requested by another *Application Entity* (*Service Class User*). Examples: Picture Archiving and Communication System (image storage SCP, and image query/retrieve SCP), Radiology Information System (modality worklist SCP).

**Service Class User (SCU)** – role of an *Application Entity* that uses a DICOM network service; typically, a client. Examples: imaging modality (image storage SCU, and modality worklist SCU), imaging workstation (image query/retrieve SCU)

**Service/Object Pair (SOP) Class** – the specification of the network or media transfer (service) of a particular type of data (object); the fundamental unit of DICOM interoperability specification. Examples: Ultrasound Image Storage Service, Basic Grayscale Print Management.

**Service/Object Pair (SOP) Instance** – an information object; a specific occurrence of information exchanged in a *SOP Class*. Examples: a specific x-ray image.

**Tag** – a 32-bit identifier for a data element, represented as a pair of four digit hexadecimal numbers, the "group" and the "element". If the "group" number is odd, the tag is for a private (manufacturer-specific) data element. Examples: (0010,0020) [Patient ID], (07FE,0010) [Pixel Data], (0019,0210) [private data element]

**Transfer Syntax** – the encoding used for exchange of DICOM information objects and messages. Examples: *JPEG* compressed (images), little endian explicit value representation.

**Unique Identifier (UID)** – a globally unique "dotted decimal" string that identifies a specific object or a class of objects; an ISO-8824 Object Identifier. Examples: Study Instance UID, SOP Class UID, SOP Instance UID.

**Value Representation (VR)** – the format type of an individual DICOM data element, such as text, an integer, a person's name, or a code. DICOM information objects can be transmitted with either explicit identification of the type of each data element (Explicit VR), or without explicit identification (Implicit VR); with Implicit VR, the receiving application must use a DICOM data dictionary to look up the format of each data element.

## 1.8 SYMBOLS AND ABBREVIATIONS

AE      Application Entity

AET      Application Entity Title

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CD-R    Compact Disk Recordable

CVIS    Cardio Vascular Information System

CT    Computed Tomography

DHCP    Dynamic Host Configuration Protocol

DICOM Digital Imaging and Communications in Medicine

DNS    Domain Name System

FSC    File-Set Creator

FSU    File-Set Updater

FSR    File-Set Reader

GSDF    Grayscale Standard Display Function

HIS    Hospital Information System

HL7    Health Level 7 Standard

IHE    Integrating the Healthcare Enterprise

IOD    Information Object Definition

IPv4    Internet Protocol version 4

IPv6    Internet Protocol version 6

ISO    International Organization for Standards

JPEG    Joint Photographic Experts Group

KOS    Key Object Selection

KIN    Key Image Note

LUT    Look-up Table

MPEG    Moving Picture Experts Group

MG    Mammography (X-ray)

MPPS    Modality Performed Procedure Step

MR    Magnetic Resonance Imaging

MWL    Modality Worklist

O    Optional (Key Attribute)

OSI    Open Systems Interconnection

PACS    Picture Archiving and Communication System

PET      Positron Emission Tomography

PDU    Protocol Data Unit

R        Required (Key Attribute)

RIS      Radiology Information System

SC      Secondary Capture

SCP    Service Class Provider

SCU    Service Class User

SOP    Service-Object Pair

SPS    Scheduled Procedure Step

SR      Structured Reporting

TCP/IP  Transmission Control Protocol/Internet Protocol

U        Unique (Key Attribute)

UL     Upper Layer

US     Ultrasound

VR     Value Representation

XA     X-Ray Angiographic Imaging

# 2. NETWORK CONFORMANCE STATEMENT

## 2.1 INTRODUCTION

This section of the DICOM Conformance Statement specifies the LOGIQ P8/P9/P10 scanner compliance to DICOM requirements for **Networking** features.

Sending and receiving Echo messages to and from DICOM Verification SCP and client.

Sending DICOM Images to remote DICOM Storage SCP.

Sending measurements as DICOM SR objects to remote DICOM Storage SCP.

Querying and retrieving DICOM Modality Worklist from a Worklist SCP.

Sending start and end of examination to a DICOM Modality Performed Procedure Step SCP.

Sending storage commitment requests (and receiving replies) to a DICOM Storage Commitment SCP.

Printing images to a DICOM Printer.

Querying and retrieving examinations from a DICOM Query/Retrieve SCP.

## 2.2 IMPLEMENTATION MODEL

### 2.2.1 Application Data Flow Diagram

The network application model for the LOGIQ P8/P9/P10 scanner is shown in the following Illustration :

**ILLUSTRATION 2–1**
LOGIQ P8/P9/P10 NETWORK APPLICATION MODEL AND DATA FLOW DIAGRAM
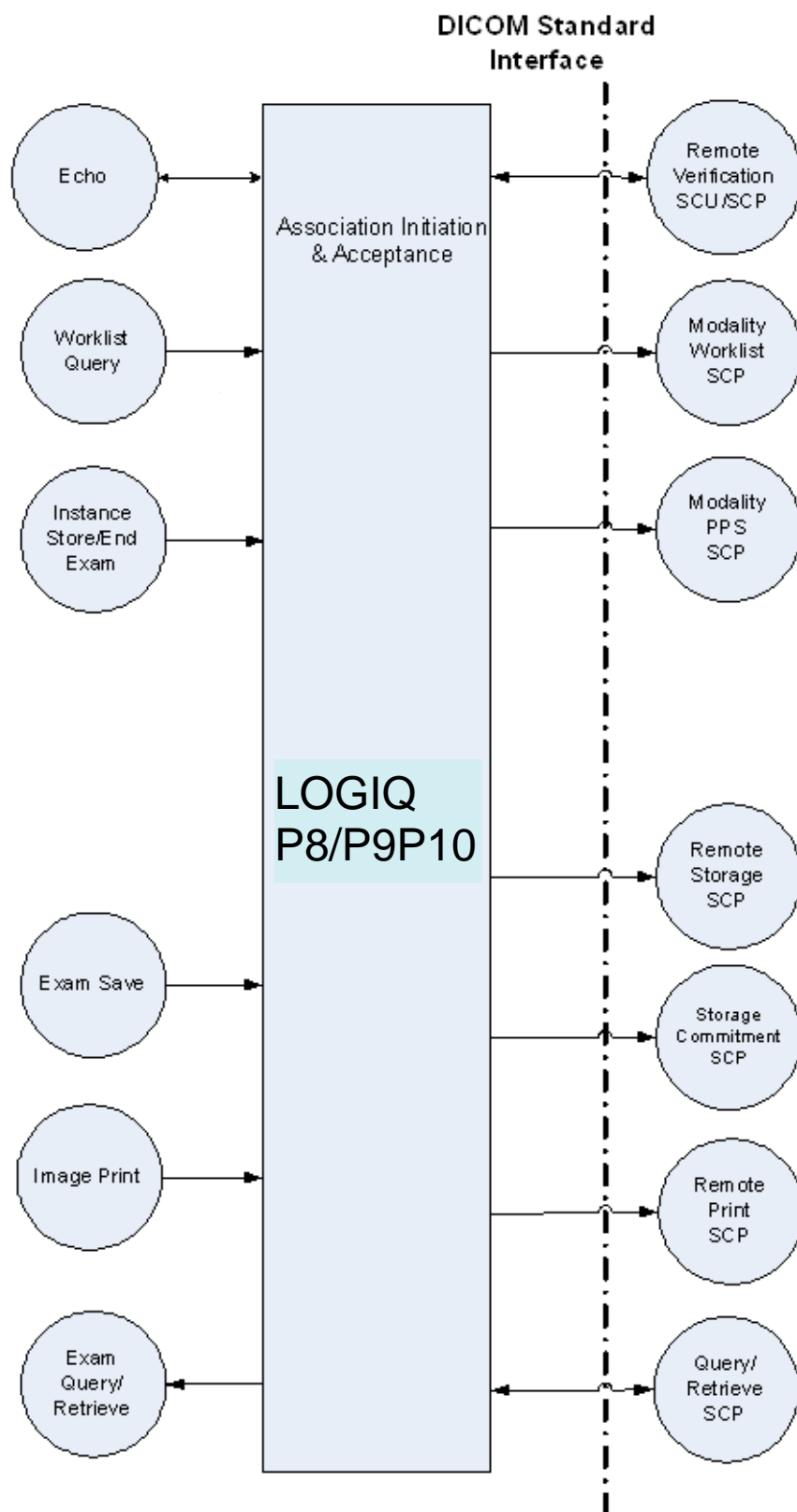
There are six local real-world activities that occur in LOGIQ P8/P9/P10 Scanner - **Exam Save, Echo, Worklist Query, Image Store/End Exam, Image Print** and **Exam Query/Retrieve**

**Exam save** initiates a connection with the DICOM SCP and transmits images and results to the DICOM SCP. If Storage Commitment is configured a commitment request will be sent for the images and results.

**Echo** initiates a connection with the DICOM SCP, posts a Verification request and closes the connection. It also responds to incoming Verification requests (for service use).

**Worklist Query** initiates a connection with the DICOM SCP, performs a query and retrieves the matching entries to the product.

**Image Store/End exam**: If Modality Performed Procedure Step is configured N-CREATE and N-SET messages will be sent for the exam.

**Image Print** will send images to a DICOM Print SCP.

**Exam Query/Retrieve** initiates a connection with the DICOM SCP, performs a query and retrieves selected examination.

### 2.2.2  Functional Definition of AE's

Application Entity LOGIQ P8/P9/P10 Scanner supports the following functions:

Initiates a DICOM association to send images and results.

Initiates a DICOM verification to assist in network diagnostics.

Initiates a DICOM worklist query to receive worklist information.

Initiates a DICOM association to notify start of examination.

Initiates a DICOM association to notify end of examination.

Initiates a DICOM association to request storage commitment of images.

Responds to replies for storage commitment requests of images.

Initiates a DICOM association to print images.

Initiates a DICOM association to query for and retrieve examinations.

Responds to storage requests for images triggered by examination retrieve requests.

### 2.2.3  Sequencing of Real-World Activities

Non Applicable.

### 2.3  AE SPECIFICATIONS

### 2.3.1  LOGIQ P8/P9/P10 Scanner AE Specification

This Application Entity provides Standard Conformance to the following DICOM SOP Classes as an **SCU** and/or as an **SCP**:

| SOP Class Name | SOP Class UID | SCU | SCP |
|---|---|---|---|
| Ultrasound Image Storage | 1.2.840.10008.5.1.4.1.1.6.1 | Yes | Yes |
| Ultrasound Image Storage (Retired) | 1.2.840.10008.5.1.4.1.1.6 | Yes | Yes |
| Ultrasound Multi-frame Image Storage | 1.2.840.10008.5.1.4.1.1.3.1 | Yes | Yes |
| Ultrasound Multi-frame Image Storage (Retired) | 1.2.840.10008.5.1.4.1.1.3 | Yes | Yes |
| Enhanced US Volume Storage | 1.2.840.10008.5.1.4.1.1.6.2 | Yes | Yes |
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 | Yes | Yes |
| Comprehensive SR | 1.2.840.10008.5.1.4.1.1.88.33 | Yes | No |
| Key Object Selection Document Storage | 1.2.840.10008.5.1.4.1.1.88.59 | Yes | No |
| Verification SOP Class | 1.2.840.10008.1.1 | Yes | Yes |
| Digital Mammography Image Storage - For Presentation | 1.2.840.10008.5.1.4.1.1.1.2 | Yes | Yes |
| Digital Mammography Image Storage - For Processing | 1.2.840.10008.5.1.4.1.1.1.2.1 | Yes | Yes |
| CT Image Storage | 1.2.840.10008.5.1.4.1.1.2 | Yes | Yes |
| MR Image Storage | 1.2.840.10008.5.1.4.1.1.4 | Yes | Yes |
| Positron Emission Tomography Image Storage | 1.2.840.10008.5.1.4.1.1.128 | Yes | Yes |
| X-Ray Angiographic Image Storage | 1.2.840.10008.5.1.4.1.1.12.1 | Yes | Yes |
| Study Root Query/Retrieve Information Model - FIND | 1.2.840.10008.5.1.4.1.2.2.1 | Yes | No |
| Study Root Query/Retrieve Information Model - MOVE | 1.2.840.10008.5.1.4.1.2.2.2 | Yes | No |
| Modality Worklist Information Model - FIND | 1.2.840.10008.5.1.4.31 | Yes | No |
| Modality Performed Procedure Step | 1.2.840.10008.3.1.2.3.3 | Yes | No |
| Storage Commitment Push Model | 1.2.840.10008.1.20.1 | Yes | No |
| Basic Grayscale Print Management Meta SOP Class | 1.2.840.10008.5.1.1.9 | Yes | No |
| Basic Color Print Management Meta SOP Class | 1.2.840.10008.5.1.1.18 | Yes | No |
| Basic Annotation Box | 1.2.840.10008.5.1.1.15 | Yes | No |
| Printer SOP Class | 1.2.840.10008.5.1.1.16 | Yes | No |
| Basic Film Session SOP Class | 1.2.840.10008.5.1.1.1 | Yes | No |
| Basic Film Box SOP Class | 1.2.840.10008.5.1.1.2 | Yes | No |
| Basic Grayscale Image Box SOP Class | 1.2.840.10008.5.1.1.4 | Yes | No |
| Basic Color Image Box SOP Class | 1.2.840.10008.5.1.1.4.1 | Yes | No |

**2.3.1.1  Association Establishment Policies**


**2.3.1.1.1  General**

The DICOM Application Context Name (ACN), which is always proposed, is:


| Application Context Name | 1.2.840.10008.3.1.1.1 |
|---|---|


The Maximum Length PDU negotiation is included in all association establishment requests. The maximum length PDU for an association initiated by LOGIQ P8/P9/P10 Scanner is:

| Maximum Length PDU | 32768 |
|---|---|

The maximum length PDU is a fixed number - not configurable.

The SOP Class Extended Negotiation is not supported.

The user information Items sent by this product are:

Maximum PDU Length

Implementation UID

Implementation Version Name


**2.3.1.1.2  Number of Associations**

The LOGIQ P8/P9/P10 Scanner AE will initiate multiple DICOM associations. The maximum numbers of associations are based on the connectivity service configuration.


**2.3.1.1.3  Asynchronous Nature**

Asynchronous mode is not supported. All operations will be performed synchronously.


**2.3.1.1.4  Implementation Identifying Information**

The Implementation UIDs for this DICOM Implementation are:

| Implementation UID | 1.2.840.113619.6.427 |
|---|---|
| Implementation Version Name | LOGIQ P8/P9/P10 |


**2.3.1.2  Association Initiation Policy**

The LOGIQ P8/P9/P10 Scanner AE attempts to establish a new association with a remote device due to six Real-World Activities:
Exam save initiated by the operator for images, key object selection document and structured reports and sending request for Storage Commitment.
Verification, which verifies application level communication between peer DICOM AE's for service purposes.
Worklist initiated by the operator for receiving worklist information.

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Image Store/End Exam sending messages to Modality Performed Procedure Step.
Print initiated by the operator for a specific image or group of images.
Exam Query/Retrieve initiated by the operator for receiving examination information and selecting examination to retrieve.

#### 2.3.1.2.1 Real-World Activity - 'Exam save' Operation

##### 2.3.1.2.1.1 Associated Real-World Activity

Upon a request by the operator (manual or automatic), images will be sent to a DICOM Storage SCP.

##### 2.3.1.2.1.2 Proposed Presentation Context Tables

The Proposed Presentation Context Table depends on compression according to the following table:

| Presentation Context Table – Proposed | | | | | |
|---|---|---|---|---|---|
| **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 | Explicit VR Little Endian<br>Explicit VR Big Endian<br>Implicit VR Little Endian<br>Run Length Encoding<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>JPEG 2000 Lossy<br>JPEG 2000 Lossless | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2<br>1.2.840.10008.1.2.5<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.90 | SCU | None |
| Ultrasound Image Storage (retired) | 1.2.840.10008.5.1.4.1.1.6 | Explicit VR Little Endian<br>Explicit VR Big Endian<br>Implicit VR Little Endian<br>Run Length Encoding<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>JPEG 2000 Lossy<br>JPEG 2000 Lossless | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2<br>1.2.840.10008.1.2.5<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.90 | SCU | None |
| Ultrasound Multi-frame Image Storage | 1.2.840.10008.5.1.4.1.1.3.1 | Explicit VR Little Endian<br>Explicit VR Big Endian<br>Implicit VR Little Endian<br>Run Length Encoding<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>JPEG 2000 Lossy<br>JPEG 2000 Lossless | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2<br>1.2.840.10008.1.2.5<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.90 | SCU | None |
| Ultrasound Multi-frame Image Storage (retired) | 1.2.840.10008.5.1.4.1.1.3 | Explicit VR Little Endian<br>Explicit VR Big Endian<br>Implicit VR Little Endian<br>Run Length Encoding<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>JPEG 2000 Lossy<br>JPEG 2000 Lossless | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2<br>1.2.840.10008.1.2.5<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.90 | SCU | None |
| Enhanced US Volume Storage | 1.2.840.10008.5.1.4.1.1.6.2 | Explicit VR Little Endian<br>Explicit VR Big Endian<br>Implicit VR Little Endian<br>Run Length Encoding<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>JPEG 2000 Lossy<br>JPEG 2000 Lossless | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2<br>1.2.840.10008.1.2.5<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.90 | SCU | None |

| | | | | | |
|---|---|---|---|---|---|
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 | Explicit VR Little Endian<br>Explicit VR Big Endian<br>Implicit VR Little Endian<br>Run Length Encoding<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>JPEG 2000 Lossy<br>JPEG 2000 Lossless | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2<br>1.2.840.10008.1.2.5<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.90 | SCU | None |
| CT Image Storage | 1.2.840.10008.5.1.4.1.1.2 | 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 |
| MR Image Storage | 1.2.840.10008.5.1.4.1.1.4 | 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 |
| Positron Emission Tomography Image Storage | 1.2.840.10008.5.1.4.1.1.128 | 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 |
| Digital Mammography Storage For Presentation | 1.2.840.10008.5.1.4.1.1.1.2 | 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 |
| Digital Mammography Storage For Processing | 1.2.840.10008.5.1.4.1.1.1.2.1 | 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 |
| X-Ray Angiographic Image Storage | 1.2.840.10008.5.1.4.1.1.12.1 | 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 |
| Comprehensive Structured Report | 1.2.840.10008.5.1.4.1.1.88.33 | Explicit VR Little Endian<br>Implicit VR Little Endian | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2 | SCU | None |
| Key Object Selection Document | 1.2.840.10008.5.1.4.1.1.88.59 | Explicit VR Little Endian<br>Implicit VR Little Endian | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2 | SCU | None |
| Storage Commitment Push Model SOP Class | 1.2.840.10008.1.20.1 | Explicit VR Little Endian<br>Implicit VR Little Endian | 1.2.840.10008.1.2.1<br>1.2.840.10008.1.2 | SCU | None |

**2.3.1.2.1.2.1  SOP Specific Conformance Statement for Image Storage SOP Classes**

For these SOP class all status codes with status Refused or Error are treated as failures and terminate the association and operation. On a failure, the request will be put in a holding queue for the user to manually retry the request. All status codes with status Warning or Success are treated as successes.

| Service Status | Further Meaning | Status Codes | Application Behavior When receiving Status Codes |
|---|---|---|---|
| Failure | Refused: Out of Resources | A7xx | Terminate association. Mark the job failed. |
| | Error: Data Set does not match SOP Class | A9xx | |
| | Error: Cannot understand | Cxxx | |
| Warning | Coercion of Data Elements | B000 | Treat the job success. |
| | Data Set does not match SOP Class | B007 | |
| | Elements Discarded | B006 | |
| Success | | 0000 | |
| * | Any other status code | * | Terminate association. Mark the job failed. |

C-STORE SCU operation supports an "Association Timer" and "Operation Inactivity Timer" with default time out value of 30 seconds each. Operation Inactivity Timer is configurable and different values that can be assigned to it are 1, 2, 3, 4, 5, 10, 20, 30, 60, 120 and 360 seconds.


#### 2.3.1.2.2 Real-World Activity - 'Echo' Operation

##### 2.3.1.2.2.1 Associated Real-World Activity

The user may initiate a DICOM Verification Request in the config screen.

Associations will be released upon the receipt of each C-ECHO confirmation.


##### 2.3.1.2.2.2 Proposed Presentation Context Table

| Presentation Context Table - Proposed | | | | | |
|---|---|---|---|---|---|
| Abstract Syntax | | Transfer Syntax | | Role | Extended Negotiation |
| Name | UID | Name List | UID List | | |
| Verification SOP Class | 1.2.840.10008.1.1 | Explicit VR Little Endian Implicit VR Little Endian | 1.2.840.10008.1.2.1 1.2.840.10008.1.2 | SCU | None |


###### 2.3.1.2.2.2.1 SOP Specific DICOM Conformance Statement for Verify SOP Class

The AE provides standard conformance to the Verification SOP Class as an SCU. In the event that the SCP does not respond for some reason, the operation will time out and LOGIQ P8/P9/P10 Scanner will close the association.

C-ECHO SCU operation supports an "Association Timer" and "Operation Inactivity Timer" with default time out value of 30 seconds and 10secs each. Operation Inactivity Timer is configurable and different values that can be assigned to it are 1 to 10 seconds.


#### 2.3.1.2.3 Real-World Activity - 'Worklist Query' Operation

##### 2.3.1.2.3.1 Associated Real-World Activity

The user may initiate a DICOM Worklist Query in Search screen, which will send a C-FIND-RQ to the Worklist SCP. Associations will be released upon the receipt of C-FIND-RSP confirmation.


##### 2.3.1.2.3.2 Proposed Presentation Context Tables

| Presentation Context Table – Proposed | | | | | |
|---|---|---|---|---|---|
| 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 | Explicit VR Little Endian Implicit VR Little Endian | 1.2.840.10008.1.2.1 1.2.840.10008.1.2 | SCU | None |

###### 2.3.1.2.3.2.1 SOP Specific DICOM Conformance Statement for Worklist SOP Classes

The LOGIQ P8/P9/P10 Scanner includes matching keys in the Modality Worklist queries as described in Section 10.
All status codes with status Refused or Error are treated as failures and terminate the association and operation. On a failure, the user will be informed and the last successful query will be used as Worklist. All status codes with status Warning or Success are treated as successes. Application doesn't support C-FIND-CANCEL request.

| Service Status | Status Code | Further Meaning | Application Behavior When receiving Status Codes |
|---|---|---|---|
| Refused | A700 | Out of resources | Terminate the association and operation |
| | 0122 | SOP Class not Supported | |
| Failed | A900 | Identifier does not match SOP Class | |
| | Cxxx | Unable to process | |
| Success | 0000 | Matching is complete – No final identifier is supplied | |
| Pending | FF00 | Matches are continuing – Current Match is supplied and any Optional Keys were supported in the same manner | Receiving process of the matches continues. |
| | FF01 | Matches are continuing – Warning that one or more Optional Keys were not supported for existence for this Identifier | |
| * | * | Any other status code. | Terminate the association and operation |

Worklist operation supports an "Association Timer" and "Operation Inactivity Timer" with default time out value of 30 seconds each. Operation Inactivity Timer is configurable and different values that can be assigned to it are 1, 2, 3, 4, 5, 10, 20, 30, 60, 120 and 360 seconds.

### 2.3.1.2.4 Real-World Activity - 'Image Store/End exam' Operation

#### 2.3.1.2.4.1 Associated Real-World Activity

The Modality Performed Procedure Step messages are sent when the first image is acquired for the start of an exam and when the exam is ended (for the case where there are no images, the N-CREATE is sent when the exam is ended). For an exam with saved images or results, the N-SET will be sent with status COMPLETED. For an exam without saved images or results, the N-SET will be sent with status DISCONTINUED.

#### 2.3.1.2.4.2 Proposed Presentation Context Table

| Presentation Context Table – Proposed | | | | | |
|---|---|---|---|---|---|
| Abstract Syntax | | Transfer Syntax | | Role | Extended Negotiation |
| Name | UID | Name List | UID List | | |
| Modality Performed Procedure Step SOP Class | 1.2.840.10008.3.1.2.3.3 | Explicit VR Little Endian Implicit VR Little Endian | 1.2.840.10008.1.2.1 1.2.840.10008.1.2 | SCU | None |

**2.3.1.2.4.2.1  SOP Specific DICOM Conformance Statement for Modality Performed Procedure Step Class**

LOGIQ P8/P9/P10 Scanner includes attributes in the Modality Performed Procedure Step N-CREATE and N-SET as described in Section 10.2.

LOGIQ P8/P9/P10 Scanner includes attributes in the Modality Performed Procedure Step N-SET as described in Section 11. The mapping from Worklist attributes is described in Section 10.5. LOGIQ P8/P9/P10 Scanner sends N-SET after the exam is ended. The N-SET will include all acquired images, KIN and SR UIDs and the status of COMPLETED or DISCONTINUED.

For this SOP class, all status codes with status Refused or Error are treated as failures and terminate the association and operation. All status codes with status Warning or Success are treated as successes.

**Modality Performed Procedure Step N-CREATE response status Handling Behavior**

| Service Status | Status Code | Further Meaning | Application Behavior When receiving Status Codes |
|---|---|---|---|
| Success | 0000 | Success | |
| * | * | Any other status | Treat as failure. Aborts the association. |

**Modality Performed Procedure Step N-SET response status Handling Behavior**

| Service Status | Status Code | Further Meaning | Application Behavior When receiving Status Codes |
|---|---|---|---|
| Failure | 0110H | Processing Failure. Performed Procedure Step Object may no longer be updated | Aborts the operation. |
| Success | 0000 | Success | Completes the operation. |
| * | * | Any other status | Aborts the operation. |

MPPS operation supports an "Association Timer" and "Operation Inactivity Timer" with default time out value of 30 seconds each. Operation Inactivity Timer is configurable and different values that can be assigned to it are 1, 2, 3, 4, 5, 10, 20, 30, 60, 120 and 360 seconds.

**2.3.1.2.5  Real-World Activity - 'Image Print' Operation**

**2.3.1.2.5.1  Associated Real-World Activity**

Upon a request by the operator, print jobs will be sent to a DICOM Print SCP. If an error occurs during the transmission, the current association is released and a new association initiated. The maximum number of retries is configurable.

**2.3.1.2.5.2  Proposed Presentation Context Tables**

The following table is used:

| Presentation Context Table - Proposed | | | | | |
|---|---|---|---|---|---|
| **Abstract Syntax** | | **Transfer Syntax** | | **Role** | **Extended** |
| **Name** | **UID** | **Name List** | **UID List** | | **Negotiation** |
| Basic Grayscale Print Management Meta SOP Class | 1.2.840.10008.5.1.1.9 | Explicit VR Little Endian Implicit VR Little Endian | 1.2.840.10008.1.2.1 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 Implicit VR Little Endian | 1.2.840.10008.1.2.1 1.2.840.10008.1.2 | SCU | None |
| Basic Annotation Box SOP Class | 1.2.840.10008.5.1.1.15 | Explicit VR Little Endian Implicit VR Little Endian | 1.2.840.10008.1.2.1 1.2.840.10008.1.2 | SCU | None |

#### 2.3.1.2.5.2.1 SOP Specific DICOM Conformance Statement for all Print Management SOP Classes

All status codes with status Refused or Error are treated as failures and terminate the association and operation. All status codes with status Warning or Success are treated as successes.

**Services supported for each Print Meta SOP Classes**

| SOP Class | SOP Class UID | DIMSE Service Element | SCU Usage |
|---|---|---|---|
| **Basic Film Session** | 1.2.840.10008.5.1.1.1 | N-CREATE | Used |
| | | N-SET | Not Used |
| | | N-DELETE | Not Used |
| | | N-ACTION | Not Used |
| **Basic Film Box** | 1.2.840.10008.5.1.1.2 | N-CREATE | Used |
| | | N-ACTION | Used |
| | | N-DELETE | Used |
| | | N-SET | Not Used |
| **Printer** | 1.2.840.10008.5.1.1.16 | N-EVENT-REPORT | Not Used |
| | | N-GET | Used |
| **Basic Grayscale Image Box** | 1.2.840.10008.5.1.1.4 | N-SET | Used |
| **Basic Color Image Box** | 1.2.840.10008.5.1.1.4.1 | N-SET | Used |
| **Basic Annotation Box** | 1.2.840.10008.5.1.1.15 | N-SET | Used |

**DICOM Print response status Handling Behavior**

| Service Status | Status Code | Further Meaning | Application Behavior When receiving Status Codes |
|---|---|---|---|
| Success | 0000 | Success | |
| Warning | B600 | Warning | Treated as success with warning log. |
| * | * | Any other status | Treated as failure. Aborts the association. |

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Dicom Print operation supports an "Association Timer" and "Operation Inactivity Timer" with default time out value of 30 seconds each. Operation Inactivity Timer is configurable and different values that can be assigned to it are 1, 2, 3, 4, 5, 10, 20, 30, 60, 120 and 360 seconds.

### 2.3.1.2.6 Real-World Activity - 'Exam Query/Retrieve' Operation

#### 2.3.1.2.6.1 Associated Real-World Activity

The user may initiate a DICOM Exam Query in Search screen, which will send a C-FIND-RQ to the Query/Retrieve SCP. Associations will be released upon the receipt of C-FIND-RSP confirmation.

The user may then select an examination to be retrieved, using the C-MOVE-RQ command to the Query/Retrieve SCP. The result from the SCP is expected on another association for the retrieved examinations.

#### 2.3.1.2.6.2 Proposed Presentation Context Tables

<table>
<tr><th colspan="6">Presentation Context Table – Proposed</th></tr>
<tr><th colspan="2">Abstract Syntax</th><th colspan="2">Transfer Syntax</th><th>Role</th><th>Extended</th></tr>
<tr><th>Name</th><th>UID</th><th>Name List</th><th>UID List</th><th></th><th>Negotiation</th></tr>
<tr><td>Study Root Query/Retrieve Information Model - FIND</td><td>1.2.840.10008.5.1.4.1.2.2.1</td><td>Explicit VR Little Endian<br>Implicit VR Little Endian</td><td>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2</td><td>SCU</td><td>None</td></tr>
<tr><td>Study Root Query/Retrieve Information Model - MOVE</td><td>1.2.840.10008.5.1.4.1.2.2.2</td><td>Explicit VR Little Endian<br>Implicit VR Little Endian</td><td>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2</td><td>SCU</td><td>None</td></tr>
</table>

#### 2.3.1.2.6.2.1 SOP Specific DICOM Conformance Statement for Study Root Query/Retrieve Information Model - FIND SOP Classes

Only a single information model, Study Root, is supported.

All queries are initiated at the highest level of the information model (the STUDY level), and then for each response received, recursively repeated at the next lower levels (the SERIES and then IMAGE levels).

C-FIND-CANCEL request is not supported.

All status codes with status Refused or Error are treated as failures and terminate the association and operation. All status codes with status Warning or Success are treated as successes. LOGIQ P8/P9/P10 Scanner will only support hierarchical query.

<table>
<tr><th>Service Status</th><th>Status Code</th><th>Further Meaning</th><th>Application Behavior When Receiving Status Code</th></tr>
<tr><td>Failure</td><td>A700</td><td>Refused: Out of resources</td><td rowspan="4">Operation aborted.</td></tr>
<tr><td></td><td>A900</td><td>Error: Identifier does not match SOP Class</td></tr>
<tr><td></td><td>C000-CFFF</td><td>Error: Unable to process</td></tr>
<tr><td></td><td>0122</td><td>SOP Class Not Supported</td></tr>
<tr><td>Cancel</td><td>FE00</td><td>Matching terminated due to cancel</td><td>Display the results in UI.</td></tr>
<tr><td>Success</td><td>0000</td><td>Matching is complete - No final</td><td>Display the results in UI.</td></tr>
</table>

| | | identifier is supplied | |
|---|---|---|---|
| Pending | FF00 | Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys. | Stores the results internally and waits for the more results. |
| | FF01 | Matches are continuing - Warning that one or more Optional Keys were not supported for existence and/or matching for this Identifier | |
| * | * | Any other status code. | Operation aborted. |

C-FIND SCU operation supports an "Association Timer" and "Operation Inactivity Timer" with default time out value of 30 seconds each. Operation Inactivity Timer is configurable and different values that can be assigned to it are 1, 2, 3, 4, 5, 10, 20, 30, 60, 120 and 360 seconds.

LOGIQ P8/P9/P10 Scanner query responses for Key Object Selection documents and Structured Report documents.

Study Level attributes for the Study Root Query/Retrieve Information Model is described in Section 15.2.

Types of Matching:
- – Single Value matching (S)
- – Universal Matching (U)
- – Wild Card Matching (*)
- – Range of date, Range of Time (R)

The types of Matching supported by the C-FIND SCU are: 'S' indicates the identifier attribute uses Single Value Matching, an 'R' indicates Range Matching, a "*" indicates wildcard matching, a 'U' indicates Universal Matching, and 'UNIQUE' indicates that this is the Unique Key for that query level, in which case Universal Matching or Single Value Matching is used depending on the query level.

"Filtering is supported" means that matching strings can be controlled from the Search screen at Data Transfer. All other matching fields can be configured in Config screen to be either enabled, enabled with a matching string value or disabled. The constant value will be used as entered by user.

**2.3.1.2.6.2.2  SOP Specific DICOM Conformance Statement for Study Root Query/Retrieve Information Model - MOVE SOP Classes**

All status codes with status Refused or Error are treated as failures and terminate the association and operation. All status codes with status Warning or Success are treated as successes.

C-MOVE-CANCEL request is not supported.

| Service Status | Status Code | Further Meaning | Application Behavior When Receiving Status Code |
|---|---|---|---|
| Failure | A701 | Refused: Out of resources - Unable to calculate number of matches | Retrieve operation will be aborted. |
| | A702 | Refused: Out of resources - Unable to perform sub-operations | |
| | A801 | Refused: Move Destination Unknown | |
| | A900 | Error: Identifier does not match SOP Class | |
| | C000-CFFF | Error: Unable to process | |
| | 0122 | SOP Class Not Supported | |
| Cancel | FE00 | Sub-operations terminated due to a Cancel indication | |
| Warning | B000 | Sub-operations Complete - One or more Failures. | Imports selected patient(s). |
| Success | 0000 | Sub-operations Complete - No Failure. | |
| Pending | FF00 | Sub-operations are continuing - | Stores the patients internally until final response. |
| * | * | Any other status code. | Retrieve operation will be aborted. |

C-MOVE SCU operation supports an "Association Timer" and "Operation Inactivity Timer" with default time out value of 30 seconds each. Operation Inactivity Timer is configurable and different values that can be assigned to it are 1, 2, 3, 4, 5, 10, 20, 30, 60, 120 and 360 seconds.

### 2.3.1.3 Association Acceptance Policy

The AE accepts an association when it receives a Verification Request from another network device or a store request from a Q/R SCP or a Storage Commitment result from a Storage Commitment SCP.

#### 2.3.1.3.1 Real-World Activity - 'Echo' operation

##### 2.3.1.3.1.1 Associated Real-World Activity

An incoming Verification Request will cause the AE to accept the association and respond with a Verification Response.

##### 2.3.1.3.1.2 Accepted Presentation Context Table

| Presentation Context Table - Accepted | | | | |
|---|---|---|---|---|
| Abstract Syntax | | Transfer Syntax | Role | Extended |

| Name | UID | Name List | UID List | | Negotiation |
|------|-----|-----------|----------|---|-------------|
| Verification SOP Class | 1.2.840.10008.1.1 | Explicit VR Little Endian Implicit VR Little Endian | 1.2.840.10008.1.2.1 1.2.840.10008.1.2 | SCP | None |

#### 2.3.1.3.1.2.1  SOP Specific DICOM Conformance Statement for Verify SOP Class

The AE provides standard conformance to the Verification SOP Class as an SCP. The port number used is configured on config screen, default is 104.

#### 2.3.1.3.1.3  Presentation Context Acceptance Criterion

No criterion.

#### 2.3.1.3.1.4  Transfer Syntax Selection Policies

The selected transfer syntax is based on the proposed transfer syntax list. The priority order is Explicit VR Little Endian and Implicit VR Little Endian.

### 2.3.1.3.2  Real-World Activity - 'Exam Query/Retrieve' Operation

#### 2.3.1.3.2.1  Associated Real-World Activity

If the user has initiated a retrieve by a C-MOVE-RQ, the AE will accept associations for C-STORE-RQs. The images will be stored locally.

#### 2.3.1.3.2.2  Accepted 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 | JPEG Baseline JPEG Lossless Non Hierarchical (Proc 14) JPEG 2000 Lossless JPEG 2000 Lossy Run Length Encoding Exp VR Little Endian Explicit VR Big Endian Imp VR Little Endian | 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.70 1.2.840.10008.1.2.4.90 1.2.840.10008.1.2.4.91 1.2.840.10008.1.2.5 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2 1.2.840.10008.1.2 | SCP | None |
| Ultrasound Multi-frame Image Storage | 1.2.840.10008.5.1.4.1.1.3.1 | JPEG Baseline JPEG Lossless Non Hierarchical (Proc 14) JPEG 2000 Lossless JPEG 2000 Lossy Run Length Encoding Exp VR Little Endian Explicit VR Big Endian Imp VR Little Endian | 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.70 1.2.840.10008.1.2.4.90 1.2.840.10008.1.2.4.91 1.2.840.10008.1.2.5 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2 1.2.840.10008.1.2 | SCP | None |
| Enhanced US Volume Storage | 1.2.840.10008.5.1.4.1.1.6.2 | JPEG Baseline JPEG Lossless Non Hierarchical (Proc 14) JPEG 2000 Lossless JPEG 2000 Lossy Run Length Encoding Exp VR Little Endian Explicit VR Big Endian Imp VR Little Endian | 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.70 1.2.840.10008.1.2.4.90 1.2.840.10008.1.2.4.91 1.2.840.10008.1.2.5 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2 1.2.840.10008.1.2 | SCP | None |

| | | | | | |
|---|---|---|---|---|---|
| Ultrasound Image Storage (retired) | 1.2.840.10008.5.1.4.1.1.6 | JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 | SCP | None |
| Ultrasound Multi-frame Image Storage (retired) | 1.2.840.10008.5.1.4.1.1.3 | JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 | SCP | None |
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 | JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 | SCP | None |
| CT Image Storage | 1.2.840.10008.5.1.4.1.1.2 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 | SCP | None |
| MR Image Storage | 1.2.840.10008.5.1.4.1.1.4 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 | SCP | None |
| Digital Mammography Storage For Presentation | 1.2.840.10008.5.1.4.1.1.1.2 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 | SCP | None |
| Digital Mammography Storage For Processing | 1.2.840.10008.5.1.4.1.1.1.2.1 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 | SCP | None |
| Positron Emission Tomography Image Storage | 1.2.840.10008.5.1.4.1.1.128 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 | SCP | None |
| X-Ray Angiographic Image Storage | 1.2.840.10008.5.1.4.1.1.12.1 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 | SCP | None |

**2.3.1.3.2.2.1  SOP Specific DICOM Conformance Statement for Storage SOP Classes**

The AE provides standard conformance to the Storage SOP Classes as an SCP. The port number used is 104. Below are all possible status codes which LOGIQ P8/P9/P10 Scanner would send upon storage request.

Application doesn't support extended negotiation hence the Storage Level is set to Level 2.

| Service Status | Status Code | Conditions |
|---|---|---|
| Failed | C000 | Processing Error |
| Success | 0000 | SOP Instance is stored successfully. |

The system currently supports retrieval of Enhanced US Volume dataset if the dataset is generated by LOGIQ P8/P9/P10 scanner and the LOGIQ P8/P9/P10 scanner generated volume raw data is present.

#### 2.3.1.3.2.3  Presentation Context Acceptance Criterion

No criterion.

#### 2.3.1.3.2.4  Transfer Syntax Selection Policies

The selected transfer syntax is based on the proposed transfer syntax list.
The priority order in case of Ultrasound Image Storage, Ultrasound Multi-frame Image Storage, Ultrasound Image Storage (retired), Ultrasound Multi-frame Image Storage (retired), Enhanced US Volume Storage and Secondary Capture Image Storage is JPEG2000 Lossless, JPEG2000 Lossy, JPEG Lossless Non Hierarchical, JPEG Baseline, Run Length Encoding (RLE), Explicit VR Little Endian, Explicit VR Big Endian and Implicit VR Little Endian.

The priority order in case of CT Image Storage, MR Image Storage,Digital Mammography Storage For Presentation,Digital Mammography Storage For Processing, Positron Emission Tomography Image Storage and X-Ray Angiographic Image Storage is Explicit VR Little Endian, Explicit VR Big Endian and Implicit VR Little Endian.

### 2.3.1.3.3  Real-World Activity - 'Exam save' Operation

#### 2.3.1.3.3.1  Associated Real-World Activity

LOGIQ P8/P9/P10 Scanner will only listen for an N-EVENT-REPORT (Storage Commitment Result) from a Storage Commitment SCP in a new association.

#### 2.3.1.3.3.2  Proposed Presentation Context Tables

The Proposed Presentation Context Table depends on compression according to the following table:

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

##### 2.3.1.3.3.2.1  SOP Specific DICOM Conformance Statement for the Storage Commitment Push Model SOP Class SCU

LOGIQ P8/P9/P10 Scanner will only accept the SCU role (which must be proposed via SCP/SCU Role Selection Negotiation) within a Presentation Context for the Storage Commitment Push Model SOP Class. The result from the SCP is expected on another association for the Storage Commitment result.

The LOGIQ P8/P9/P10 Scanner behavior after receiving an N-EVENT-REPORT (Storage Commitment Result) is described in Section 12.2.4. Below are all possible status codes which LOGIQ P8/P9/P10 scanner would send upon N-EVENT-REPORT request as EVENT-REPORT response.

| Service Status | Status Code | Conditions |
|---|---|---|
| Failed | 0110H | Processing Error |
| Success | 0000 | N-Even Report received successfully. |

## 2.4 COMMUNICATION PROFILES

### 2.4.1 Supported Communication Stacks (PS 3.8)

DICOM Upper Layer (PS 3.8) is supported using TCP/IP.

### 2.4.2 TCP/IP Stack

The TCP/IP stack is inherited from the product's operating system. Please refer to product documentation for more information.

### 2.4.2.1 API

Not applicable to this product.

### 2.4.3 Additional Protocols

LOGIQ P8/P9/P10 Scanner supports DHCP.

### 2.4.4 IPv4 and IPv6 support

LOGIQ P8/P9/P10 Scanner supports IPv4 only.

## 2.5 EXTENSIONS / SPECIALIZATIONS / PRIVATIZATIONS

If so configured, the product will send ultrasound raw data information in private data elements designated by the Private Creator element:

| Element Name | Tag | VR | VM | Description |
|---|---|---|---|---|
| Private Creator | 7FE1,00xx | LO | 1 | GEMS_Ultrasound_MovieGroup_001 |

This means that all private tags starting with 7FE1,xx will belong to the GEMS_Ultrasound_MovieGroup_001.
If so configured, the product will send preview image in private data elements designated by the Private Creator element:

| Element Name | Tag | VR | VM | Description |
|---|---|---|---|---|
| Private Creator | 6003,00xx | LO | 1 | GEMS_Ultrasound_ImageGroup_001 |

This means that all private tags starting with 6003,xx will belong to the GEMS_Ultrasound_ImageGroup_001.

The product will send measurements raw data information in private data elements designated by the Private Creator element:

| Element Name | Tag | VR | VM | Description |
|---|---|---|---|---|
| Private Creator | 6005,00xx | LO | 1 | GE_GROUP |

This means that all private tags starting with 6005,xx will belong to the GE_GROUP.

If so configured, the product will send exam information in private data elements designated by the Private Creator element:

| Element Name | Tag | VR | VM | Description |
|---|---|---|---|---|
| Private Creator | 6FF1,00xx | LO | 1 | GE Contrast Quantification |

This means that all private tags starting with 6FF1,xx will belong to the GE Contrast Quantification

If so configured, the product will send exam information in private data elements designated by the Private Creator element:

| Element Name | Tag | VR | VM | Description |
|---|---|---|---|---|
| Private Creator | 6001,00xx | LO | 1 | GE Generic Data |

This means that all private tags starting with 6001,00xx will belong to the GE Generic Data.

## 2.6  CONFIGURATION

### 2.6.1  AE Title/Presentation Address Mapping

The Local AE title is configurable through the Config screen, see below.

### 2.6.2  Configurable Parameters

**Network**:
- Local IP address
- Local IP netmask
- Default Gateway
- Local network speed information

**Local**:
- Local AE Title
- Local port number

**Verification**:
- The AE Title, IP address and port number of the SCP
- Max retries, Retry interval, Timeout

**Modality Worklist**:
- The AE Title, IP address and port number of the SCP
- Max retries, Retry interval, Timeout
- Refresh interval - the interval between downloads from the worklist. Searching for a patient within the time of a refresh interval does not perform a new worklist query.
- Disabling/enabling and setting constant values for query fields – This is a way to disable search criteria in the worklist query or setting them to a fixed value.
- Maximum number of downloaded entries

**Storage**:
- The AE Title, IP address and port number of the SCP
- Max retries, Retry interval, Timeout
- Enable/disable raw data
- Frame rate reduction
- Enable/disable multi-frame
- Compression selections
- Color support
- Association strategies: one association per image or one association per exam
- Include structured report (SR).
- Included Key Object Selection Document for Image Rejection (KOS)

**Modality Performed Procedure Step:**
- The AE Title, IP address and port number of the SCP
- Max retries, Retry interval, Timeout

**Storage Commitment**:

- The AE Title, IP address and port number of the SCP
- Max retries, Retry interval, Timeout
- The associated Storage service which triggers the sending of Storage Commitment requests

**Print**:
- The AE Title, IP address and port number of the SCP
- Max retries, Retry interval, Timeout
- Include Annotation Box
- Configuration for each job according to attribute description in Section 12 of this document.

**Query/Retrieve**:
- The AE Title, IP address and port number of the SCP
- Max retries, Retry interval, Timeout
- Disabling/enabling and setting constant values for query fields
- Maximum number of downloaded entries

## 2.7 SUPPORT OF EXTENDED CHARACTER SETS

LOGIQ P8/P9/P10 Scanner supports the ISO IR 100 (ISO 8859-1:1987 Latin alphabet N 1. supplementary set). Other character sets won't be displayed correctly if received.

## 2.8 CODES AND CONTROLLED TERMINOLOGY

### 2.8.1 Fixed Coded Terminology

The product uses the fixed (non-configurable, non-extensible) coded terminology in SR Document and Key Object Selection attributes, as described in Section: 8 and Section: 9.

## 2.9 SECURITY PROFILES

### 2.9.1 Environment

Besides several SCU of DICOM SOP Classes(Refer to 2.9.2), the product does not conform to any defined DICOM Security Profiles.
It is assumed that the product is used within a secured environment. It is assumed that a secured environment includes at a minimum:
1. Firewall or router protections to ensure that only approved external hosts have network access to the product.
2. Firewall or router protections to ensure that the product only has network access to approved external hosts and services.
3. Any communications with external hosts and services outside the locally secured environment use appropriate secure network channels (such as a Virtual Private Network (VPN))

### 2.9.2 Encryption Support

This product supports encrypted communication as SCU of following DICOM SOP Classes

| SOP Class Name | SOP Class UID |
|---|---|
| Verification SOP Class | 1.2.840.10008.1.1 |
| Ultrasound Image Storage | 1.2.840.10008.5.1.4.1.1.6.1 |
| Ultrasound Image Storage (Retired) | 1.2.840.10008.5.1.4.1.1.6 |

| Ultrasound Multi-frame Image Storage | 1.2.840.10008.5.1.4.1.1.3.1 |
| Ultrasound Multi-frame Image Storage (Retired) | 1.2.840.10008.5.1.4.1.1.3 |
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 |
| Enhnaced US Volume Storage | 1.2.840.10008.5.1.4.1.1.6.2 |

Supported security protocol:

- Secure Sockets Layer 3.0 client protocol(SSLV3)

- Transport Layer Security 1.0 client protocol(TLSV1)

Note: Peer authentication is **NOT** supported.

supported cipher suites:

- TLS_RSA_WITH_RC4_128_MD5

- TLS_RSA_WITH_RC4_128_SHA

- TLS_RSA_WITH_3DES_EDE_CBC_SHA

- TLS_DHE_DSS_WITH_3DES_EDE_CBC_SHA

- TLS_RSA_WITH_DES_CBC_SHA

- TLS_DHE_DSS_WITH_DES_CBC_SHA

- TLS_RSA_EXPORT1024_WITH_RC4_56_SHA

- TLS_RSA_EXPORT1024_WITH_DES_CBC_SHA

- TLS_DHE_ESS_EXPORT1024_WITH_DES_CBC_SHA

- TLS_RSA_EXPORT_WITH_RC4_40_MD5

- TLS_RSA_EXPORT_WITH_RC2_CBC_40_MD5

- TLS_RSA_WITH_NULL_MD5

- TLS_RSA_WITH_NULL_SHA

# 3. MEDIA STORAGE CONFORMANCE STATEMENT

## 3.1 INTRODUCTION

This section of the conformance statement (CS) specifies the LOGIQ P8/P9/P10 Scanner compliance to DICOM Media Interchange. It details the DICOM Media Storage Application Profiles and roles, which are supported by this product. LOGIQ P8/P9/P10 Scanner is able to export images and SR documents to DICOM media, browse DICOM media or read images and SR documents from DICOM media. And this product doesn't support DICOM SR and KOS document objects.

## 3.2 IMPLEMENTATION MODEL

### 3.2.1 Application Data Flow Diagram

The Basic and Specific Application models for this device are shown in the following Illustration:

**ILLUSTRATION 3–1**
SPECIFIC AE APPLICATION MODEL
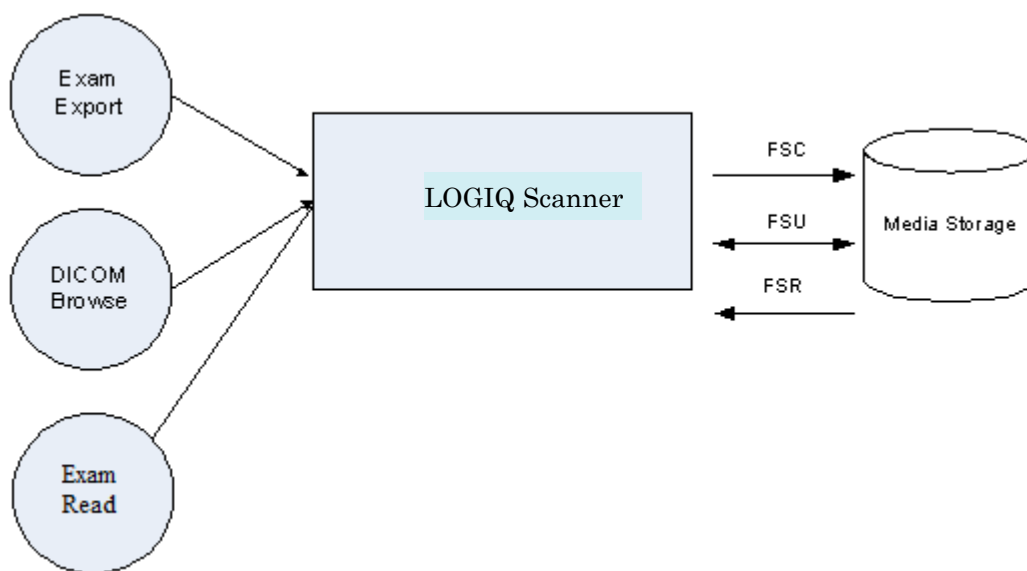


LOGIQ P8/P9/P10 scanner can initialize Media by acting as an FSC to create a new DICOM File-set on CD/DVD media of various sizes. The SOP instances written to media must be one of the instances supported by LOGIQ P8/P9/P10 scanner. A pre-existing File-set will be updated with the information in DICOM files copied to media.

### 3.2.2 Functional Definition of AE's

LOGIQ P8/P9/P10 scanner can perform these functions:
• Create a new DICOM File-set on media
• Update DICOM File-set by adding new SOP instances to the File-set
• Read information, images and SR documents from the existing File-set

### 3.2.3 Sequencing Requirements

None applicable

### 3.2.4 File Meta Information Options (See PS3.10)

The File Meta-Information for this implementation is:

| Product Name | File Meta-Information Version | Implementation UID | Implementation Version Name |
|---|---|---|---|
| LOGIQ P8/P9/P10 | 1 | 1.2.840.113619.6.427 | LOGIQ P8/P9/P10 |

Note: The Implementation Version Name and may change in the future without modification of this document.

## 3.3  AE SPECIFICATIONS

### 3.3.1  LOGIQ P8/P9/P10 scanner AE Specification

The LOGIQ P8/P9/P10 scanner Application Entity provides standard conformance to DICOM Interchange Option of the Media Storage Service Class. The Application Profiles and roles are listed below; the standard profiles are augmented with Secondary Capture images.

TABLE 3-1

| Supported Application Profile | Real World Activity | Role | Description |
|---|---|---|---|
| STD-GEN-CD | Exam export | FSC/FSU | Interchange |
| | Browse | FSR | Interchange |
| | Exam Read | FSR | Interchange |
| STD-GEN-DVD-JPEG | Exam export | FSC/ FSU | Interchange |
| | Browse | FSR | Interchange |
| | Exam Read | FSR | Interchange |
| STD-GEN-DVD-J2K | Exam export | FSC/ FSU | Interchange |
| | Browse | FSR | Interchange |
| | Exam Read | FSR | Interchange |
| STD-GEN-USB-JPEG | Exam export | FSC/ FSU | Interchange |
| | Browse | FSR | Interchange |
| | Exam Read | FSR | Interchange |
| STD-GEN-USB-J2K | Exam export | FSC/ FSU | Interchange |
| | Browse | FSR | Interchange |
| | Exam Read | FSR | Interchange |

#### 3.3.1.1  File Meta Information for the LOGIQ P8/P9/P10 Scanner Application Entity

The Source Application Entity is set from the LOGIQ P8/P9/P10 scanner local AE title. The local AE is configurable. Following are the default value set in the File Meta Information for this AE Title:

| Source Application Entity Title | LOGIQ_<Serial Number> (User Configurable) |
|---|---|

#### 3.3.1.2  Real-World Activities for the LOGIQ P8/P9/P10 Scanner Application Entity

##### 3.3.1.2.1  Real-World Activity "Exam Export"

"Exam Export" saves a DICOM SOP instances and SR objects to media and updates DICOMDIR.

**3.3.1.2.1.1  Media Storage Application Profile for the Real-World Activity "Exam Export":**

For the list of Application Profiles that invoke this AE for "Exam Export" Real-World Activity, see the Table in Section 3.3 "LOGIQ P8/P9/P10 Scanner AE Specification" where the table describing the profiles and real-world activities is defined.

**3.3.1.2.1.1.1  Options**

Following are the SOP Classes supported by the Real-World Activity "Exam Export":

TABLE 3-2

| Information Object Definition | SOP Class UID | Transfer Syntax | Transfer Syntax UID |
|---|---|---|---|
| Ultrasound Image Storage | 1.2.840.10008.5.1.4.1.1.6.1 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| Ultrasound Multi-frame Image Storage | 1.2.840.10008.5.1.4.1.1.3.1 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| Enhanced US Volume Storage | 1.2.840.10008.5.1.4.1.1.6.2 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| Ultrasound Image Storage (retired) | 1.2.840.10008.5.1.4.1.1.6 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| Ultrasound Multi-frame Image Storage (retired) | 1.2.840.10008.5.1.4.1.1.3 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |

| | | | |
|---|---|---|---|
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5 |
| | | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| CT Image Storage | 1.2.840.10008.5.1.4.1.1.2 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| MR Image Storage | 1.2.840.10008.5.1.4.1.1.4 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| Digital Mammography Storage For Presentation | 1.2.840.10008.5.1.4.1.1.1.2 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| Digital Mammography Storage For Processing | 1.2.840.10008.5.1.4.1.1.1.2.1 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| Positron Emission Tomography Image Storage | 1.2.840.10008.5.1.4.1.1.128 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| X-Ray Angiographic Image Storage | 1.2.840.10008.5.1.4.1.1.12.1 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| Comprehensive SR Storage | 1.2.840.10008.5.1.4.1.1.88.33 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |

### 3.3.1.2.2  Real-World Activity "Exam Import"

"Exam Import" imports DICOM SOP instances from media.

#### 3.3.1.2.2.1  Media Storage Application Profile for the Real-World Activity "Exam Import":

For the list of Application Profiles that invoke this AE for "Exam Import" Real-World Activity, see the Table in Section 3.3 "LOGIQ P8/P9/P10 Scanner AE Specification" where the table describing the profiles and real-world activities is defined.

#### 3.3.1.2.2.1.1  Options

Following are the SOP Classes supported by the Real-World Activity "Exam Import":

**TABLE 3-3**

| Information Object Definition | SOP Class UID | Transfer Syntax | Transfer Syntax UID |
|---|---|---|---|
| Ultrasound Image Storage | 1.2.840.10008.5.1.4.1.1.6.1 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |

| | | | |
|---|---|---|---|
| Ultrasound Multi-frame Image Storage | 1.2.840.10008.5.1.4.1.1.3.1 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| Enhanced US Volume Storage | 1.2.840.10008.5.1.4.1.1.6.2 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| Ultrasound Image Storage (retired) | 1.2.840.10008.5.1.4.1.1.6 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| Ultrasound Multi-frame Image Storage (retired) | 1.2.840.10008.5.1.4.1.1.3 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| CT Image Storage | 1.2.840.10008.5.1.4.1.1.2 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| MR Image Storage | 1.2.840.10008.5.1.4.1.1.4 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| Digital Mammography Storage For Presentation | 1.2.840.10008.5.1.4.1.1.1.2 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| Digital Mammography Storage For Processing | 1.2.840.10008.5.1.4.1.1.1.2.1 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| Positron Emission Tomography Image Storage | 1.2.840.10008.5.1.4.1.1.128 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |

| X-Ray Angiographic Image Storage | 1.2.840.10008.5.1.4.1.1.12.1 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
|---|---|---|---|
| Comprehensive SR Storage* | 1.2.840.10008.5.1.4.1.1.88.33 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |

### 3.3.1.2.3 Real-World Activity "DICOM Browse"

DICOM Browse is activated when the user searches for an exam in Search screen.

### 3.3.1.2.3.1 Media Storage Application Profile for the Real-World Activity "DICOM Browse"

For the list of Application Profiles that invoke this AE for Image Read Real-World Activity, see the Table in Section 3.3.1 "LOGIQ P8/P9/P10 Scanner AE Specification".

### 3.3.1.2.3.1.1 Options

Following are the SOP Classes supported by the Real-World Activity DICOM Browse:

**TABLE 3-4**

| Information Object Definition | SOP Class UID | Transfer Syntax | Transfer Syntax UID |
|---|---|---|---|
| Media Storage Directory Storage | 1.2.840.10008.1.3.10 | Explicit VR Little Endian | 1.2.840.10008.1.2.1 |

### 3.3.1.2.4 Real-World Activity "Exam read"

"Exam read" reads and displays a DICOM SOP instance from media.

### 3.3.1.2.4.1 Media Storage Application Profile for the Real-World Activity "Exam read "

For the list of Application Profiles that invoke this AE for Exam read Real-World Activity, see the Table in Section 3.3.1 "LOGIQ P8/P9/P10 Scanner AE Specification".

### 3.3.1.2.4.1.1 Options

Following are the SOP Classes supported by the Exam read Real-World Activity:

**TABLE 3-5**

| Information Object Definition | SOP Class UID | Transfer Syntax | Transfer Syntax UID |
|---|---|---|---|
| Ultrasound Image Storage | 1.2.840.10008.5.1.4.1.1.6.1 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| Ultrasound Multi-frame Image Storage | 1.2.840.10008.5.1.4.1.1.3.1 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |

| | | | |
|---|---|---|---|
| Enhanced US Volume Storage | 1.2.840.10008.5.1.4.1.1.6.2 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non<br>Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| Ultrasound Image Storage (retired) | 1.2.840.10008.5.1.4.1.1.6 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non<br>Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| Ultrasound Multi-frame Image Storage (retired) | 1.2.840.10008.5.1.4.1.1.3 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non<br>Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 | JPEG 2000 Lossless<br>JPEG 2000 Lossy<br>JPEG Baseline<br>JPEG Lossless Non<br>Hierarchical (Proc 14)<br>Run Length Encoding<br><br>Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp VR Little Endian | 1.2.840.10008.1.2.4.90<br>1.2.840.10008.1.2.4.91<br>1.2.840.10008.1.2.4.50<br>1.2.840.10008.1.2.4.70<br><br>1.2.840.10008.1.2.5<br><br>1.2.840.10008.1.2.1<br>1.2.840.10008.1.2.2<br>1.2.840.10008.1.2 |
| CT Image Storage | 1.2.840.10008.5.1.4.1.1.2 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| MR Image Storage | 1.2.840.10008.5.1.4.1.1.4 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| Digital Mammography Storage For Presentation | 1.2.840.10008.5.1.4.1.1.1.2 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| Digital Mammography Storage For Processing | 1.2.840.10008.5.1.4.1.1.1.2.1 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| Positron Emission Tomography Image Storage | 1.2.840.10008.5.1.4.1.1.128 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |
| X-Ray Angiographic Image Storage | 1.2.840.10008.5.1.4.1.1.12.1 | Exp VR Little Endian<br>Explicit VR Big Endian<br>Imp 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 |

## 3.4 AUGMENTED AND PRIVATE APPLICATION PROFILES

### 3.4.1 Roles and Service Class Options

#### 3.4.1.1 File Set Creator

File Set Creator shall be able to generate the Basic Directory SOP Class in the DICOMDIR File with all types of Directory Records related to the SOP Classes stored in the File-set.

#### 3.4.1.2 File Set Reader

File Set Readers shall be able to read all the SOP Classes defined for the specific Application Profile for which a Conformance Statement is made using all the defined Transfer Syntaxes.

### 3.4.2 Augmented Application Profiles

The CD-R, DVD and USB Media Archive Interchange AE does not support any augmented Application Profiles.

### 3.4.3 Private Application Profiles

The CD-R, DVD and USB Media Interchange AE does not support any private Application Profiles.

## 3.5 EXTENSIONS, SPECIALIZATIONS, PRIVATIZATIONS OF SOP CLASSES AND TRANSFER SYNTAXES

If so configured, the product will send ultrasound raw data information in private data elements designated by the Private Creator element:

| Element Name | Tag | VR | VM | Description |
|---|---|---|---|---|
| Private Creator | 7FE1,00xx | LO | 1 | GEMS_Ultrasound_MovieGroup_001 |

This means that all private tags starting with 7FE1,xx will belong to the GEMS_Ultrasound_MovieGroup_001.

If so configured, the product will send ultrasound preview image in private data elements designated by the Private Creator element:

| Element Name | Tag | VR | VM | Description |
|---|---|---|---|---|
| Private Creator | 6003,00xx | LO | 1 | GEMS_Ultrasound_ImageGroup_001 |

This means that all private tags starting with 6003,xx will belong to the GEMS_Ultrasound_ImageGroup_001.

If so configured, the product will send exam information in private data elements designated by the Private Creator element:

| Element Name | Tag | VR | VM | Description |
|---|---|---|---|---|
| Private Creator | 6FF1,00xx | LO | 1 | GE Contrast Quantification |

This means that all private tags starting with 6FF1,xx will belong to the GE Contrast Quantification

If so configured, the product will send exam information in private data elements designated by the Private Creator element:

| Element Name | Tag | VR | VM | Description |
|---|---|---|---|---|
| Private Creator | 6001,00xx | LO | 1 | GE Generic Data |

This means that all private tags starting with 6001,xx will belong to the GE Generic Data.

**3.6  CONFIGURATION**

Not Applicable.


**3.7  SUPPORT OF EXTENDED CHARACTER SETS**


LOGIQ P8/P9/P10 Scanner will support the ISO IR 100 (ISO 8859-1:1987 Latin alphabet N 1. supplementary set). Any incoming SOP instance that is encoded using another extended character set will not be read.

# 4. ULTRASOUND IMAGE INFORMATION OBJECT IMPLEMENTATION

## 4.1 INTRODUCTION

This section specifies the use of the DICOM US Image IOD to represent the information included in US Images produced by this implementation. Corresponding attributes are conveyed using the module construct.

## 4.2 LOGIQ P8/P9/P10 SCANNER MAPPING OF DICOM ENTITIES

The LOGIQ P8/P9/P10 Scanner maps DICOM Information Entities to local Information Entities in the product's database and user interface.

**TABLE 4-1**
**MAPPING OF DICOM ENTITIES TO LOGIQ P8/P9/P10 SCANNER ENTITIES**

| DICOM IE | LOGIQ P8/P9/P10 Scanner Entity |
|----------|-------------------------------|
| Patient | Patient |
| Study | Exam |
| Series | Series |
| Image | Image |

## 4.3 IOD MODULE TABLE

The Ultrasound Image Information Object Definition comprises the modules of the following table. The elements not listed are not used by the application.

**TABLE 4-2**
**US IMAGE IOD MODULES**

| Entity Name | Module Name | Usage | Reference |
|-------------|-------------|-------|-----------|
| Patient | Patient | Used | 4.4.1.1 |
| | Clinical Trial Subject | Not used | N/A |
| Study | General Study | Used | 4.4.2.1 |
| | Patient Study | Used | 4.4.2.2 |
| | Clinical Trial Study | Not used | N/A |
| Series | General Series | Used | 4.4.3.1 |
| | Clinical Trial Series | Not used | N/A |
| Frame of Reference | Frame of Reference | Not used | N/A |
| | Synchronization | Not used | N/A |
| Equipment | General Equipment | Used | 4.4.4.1 |
| Image | General Image | Used | 4.4.5.1 |
| | Image Pixel | Used | 4.4.5.2 |
| | Contrast/Bolus | Used | 4.4.5.3 |

| | Required if contrast media was used in this image | |
|---|---|---|
| Palette Color Lookup Table | Used<br><br>Required if photometric Interpretation (0028,0004) has a value of PALETTE COLOR | 4.4.5.4 |
| Device | Not used | N/A |
| US Region Calibration | Used | 4.4.5.5 |
| US Image | Used | 4.4.5.6 |
| Overlay Plane | Not used | N/A |
| VOI LUT | Used | 0 |
| SOP Common | Used | 4.4.5.8 |

## 4.4  INFORMATION MODULE DEFINITIONS

Please refer to DICOM Part 3 (Information Object Definitions) for a description of each of the entities, modules, and attributes contained within the US Information Object.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included for completeness and to define what values they may take and where these values are obtained from when generating the instance. It should be noted that they are the same ones as defined in the DICOM Standard Part 3 (Information Object Definitions). Also note that Attributes not present in tables are not supported.

### 4.4.1  Patient Entity Modules

#### 4.4.1.1  Patient Module

**TABLE 4-3**
**◻PATIENT MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Patient's Name | (0010,0010) | 2 | May be entered from User Interface.<br>Taken from worklist if it is there. |
| Patient ID | (0010,0020) | 2 | May be entered from User Interface.<br>Taken from worklist if it is there. |
| Issuer of Patient ID | (0010,0021) | 3 | Taken from worklist if it is there. |
| Patient's Birth Date | (0010,0030) | 2 | May be entered from User Interface.<br>Taken from worklist if it is there. |
| Patient's Sex | (0010,0040) | 2 | May be entered from User Interface.<br>Taken from worklist if it is there. |
| Referenced Patient Sequence | (0008,1120) | 3 | Taken from worklist if it is there. |
| >Include 'SOP Instance Reference Macro' | | | |
| Patient's Birth Time | (0010,0032) | 3 | Taken from worklist if it is there. |
| Other Patient IDs | (0010,1000) | 3 | Taken from worklist if it is there. |
| Other Patient IDs Sequence | (0010,1002) | 3 | Not supported. |
| Ethnic Group | (0010,2160) | 3 | Taken from worklist if it is there. |

| Patient Comments | (0010,4000) | 3 | Taken from worklist if it is there. |
|---|---|---|---|

### 4.4.2 Study Entity Modules

#### 4.4.2.1 General Study Module

**TABLE 4-4**
**GENERAL STUDY MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Study Instance UID | (0020,000D) | 1 | Uniquely generated by the equipment.<br>Taken from worklist if it is there. |
| Study Date | (0008,0020) | 2 | Is set to examination date |
| Study Time | (0008,0030) | 2 | Is set to examination time |
| Referring Physician's Name | (0008,0090) | 2 | May be entered from User Interface.<br>Taken from worklist if it is there. |
| Study ID | (0020,0010) | 2 | Taken from worklist if it is there (from Requested Procedure ID) or set the study creation date/time in <YYYYMMDD.HHMMSS> format |
| Accession Number | (0008,0050) | 2 | May be entered from User Interface.<br>Taken from worklist if it is there. |
| Study Description | (0008,1030) | 3 | Taken from worklist if it is there (from Requested Procedure Description). |
| Physician(s) of Record | (0008,1048) | 3 | Taken from worklist if it is there (from Names of Intended Recipients of Result) |
| Referenced Study Sequence | (0008,1110) | 3 | Taken from worklist if it is there. (Not used in SR Documents.) |
| >Include 'SOP Instance Reference Macro' | | | |

#### 4.4.2.2 Patient Study Module

**TABLE 4-5**
**PATIENT STUDY MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Patient's Size | (0010,1020) | 3 | May be entered from User Interface.<br>Taken from worklist if it is there. |
| Patient's Weight | (0010,1030) | 3 | May be entered from User Interface.<br>Taken from worklist if it is there. |
| Additional Patient's History | (0010,21B0) | 3 | Taken from worklist if it is there. |
| Admitting Diagnoses Description | (0008,1080) | 3 | May be entered from User Interface. |
| Visit Comments | (0038,4000) | 3 | May be entered from User Interface. |

**4.4.3 Series Entity Modules**

**4.4.3.1 General Series Module**

TABLE 4-6
GENERAL SERIES MODULE ATTRIBUTES

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Modality | (0008,0060) | 1 | Defined Term "US" used. When reading SC all modalities are accepted. |
| Series Instance UID | (0020,000E) | 1 | Uniquely generated by the equipment |
| Series Number | (0020,0011) | 2 | Internal number which is incremented for each new series (exam) within a study. |
| Series Date | (0008,0021) | 3 | Is set to Series date |
| Series Time | (0008,0031) | 3 | Is set to Series time |
| Performing Physicians' Name | (0008,1050) | 3 | May be entered from User Interface. Taken from worklist if it is there (from Scheduled Performing Physician's Name) |
| Protocol Name | (0018,1030) | 3 | Used in Stress Echo Exam Protocol |
| Series Description | (0008,103E) | 3 | Taken from worklist if it is there (from Scheduled Procedure Step Description) |
| Operators' Name | (0008,1070) | 3 | May be entered from User Interface. Default is login id. |
| Request Attributes Sequence | (0040,0275) | 3 | Used if Modality Worklist is enabled. |
| >Requested Procedure ID | (0040,1001) | 1C | Taken from worklist if it is there. |
| >Accession Number | (0008,0050) | 3 | Not supported. |
| >Study Instance UID | (0020,000D) | 3 | Not supported. |
| >Referenced Study Sequence | (0008,1110) | 3 | Not supported. |
| >> Include 'SOP Instance Reference Macro' | | | |
| >Requested Procedure Description | (0032,1060) | 3 | Not supported. |
| >Requested Procedure Code Sequence | (0032,1064) | 3 | Not supported. |
| >Scheduled Procedure Step ID | (0040,0009) | 1C | Taken from worklist if it is there. |
| >Scheduled Procedure Step Description | (0040,0007) | 3 | Taken from worklist if it is there. |
| >Scheduled Protocol Code Sequence | (0040,0008) | 3 | Not supported. |
| Performed Procedure Step ID | (0040,0253) | 3 | Used if Modality Performed Procedure Step is enabled. |
| Performed Procedure Step Start Date | (0040,0244) | 3 | Used if Modality Performed Procedure Step is enabled. |
| Performed Procedure Step Start Time | (0040,0245) | 3 | Used if Modality Performed Procedure Step is enabled. |
| Performed Procedure Step Description | (0040,0254) | 3 | Used if Modality Performed Procedure Step is enabled. |
| Performed Protocol Code Sequence | (0040,0260) | 3 | Taken from worklist if it is there (from Scheduled Protocol Code Sequence) or in case of Stress test |
| >Include 'Code Sequence Macro' | | | Please refer Table: Table 4-7 |

**TABLE 4-7**
**PERFORMED PROTOCOL CODE SEQUENCE MAPPING**

| GE Value | DICOM Mapping |
|----------|---------------|
| Bicycle Normal | (P2-31102,SRT,Stress test using Bicycle Ergometer) |
| Bicycle Sporty | (P2-31102,SRT,Stress test using Bicycle Ergometer) |
| Contrast Pharmacological | (P2-31107,SRT,Pharmacologic Stress protocol) |
| Pharmacological 4x4 | (P2-31107,SRT,Pharmacologic Stress protocol) |
| Pharmacological 8x5 | (P2-31107,SRT,Pharmacologic Stress protocol) |
| Exercise 2x4 | (P5-B3050,SRT,Exercise stress echocardiography) |
| Exercise 2x4 B | (P5-B3050,SRT,Exercise stress echocardiography) |
| Pharmacological US 4x4 | (P2-31107,SRT,Pharmacologic Stress protocol) |

### 4.4.4 Equipment Entity Modules

#### 4.4.4.1 General Equipment Module

**TABLE 4-8**
**GENERAL EQUIPMENT MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Attribute Description |
|----------------|-----|------|------------------------|
| Manufacturer | (0008,0070) | 2 | Is set to "GE Healthcare" |
| Institution Name | (0008,0080) | 3 | Is set to configured Institution Name. |
| Station Name | (0008,1010) | 3 | Is set to configured Station Name. |
| Institutional Department Name | (0008,1040) | 3 | May be entered from User Interface. Default is configured Department name. |
| Manufacturer's Model Name | (0008,1090) | 3 | Is set to "LOGIQ P9 or P7". |
| Software Versions | (0018,1020) | 3 | Is set to LOGIQ P9 or P7 software version |

### 4.4.5 Image Entity Modules

#### 4.4.5.1 General Image Module

**TABLE 4-9**
**GENERAL IMAGE MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Attribute Description |
|----------------|-----|------|------------------------|
| Instance Number | (0020,0013) | 2 | Internal value which is incremented for each captured image within a series. (within an exam) |
| Patient Orientation | (0020,0020) | 2C | Sent with empty value. |
| Content Date | (0008,0023) | 2C | Set from Image date |
| Content Time | (0008,0033) | 2C | Set from Image time |
| Image Type | (0008,0008) | 3 | The first two values contain 'ORIGINAL/PRIMARY' or 'DERIVED/ PRIMARY'. |

| | | | Value 3 is the description of the type of application |
|---|---|---|---|
| | | | per the DICOM PS3.3-2011, section C.8.5.6.1.1; |
| | | | Supported enumerated values are: |
| | | | ABDOMINAL |
| | | | GYNECOLOGY |
| | | | OBSTETRICAL |
| | | | PEDIATRIC |
| | | | SMALL PARTS |
| | | | VASCULAR |
| | | | SCROTAL |
| | | | INTRACARDIAC |
| | | | Value 4 is a description of the mode per the DICOM PS3.3-2011, section C.8.5.6.1.1; |
| | | | Supported enumerated values are sum of values in hexadecimal encoded, which based on: |
| | | | Value     Meaning<br>0001      2D Imaging<br>0002      M- Mode<br>0004      CW Doppler<br>0008      PW Doppler<br>0010      Color Doppler<br>0020      Color M-Mode<br>0040      3D Rendering<br>0100      Color Power Mode |
| | | | Values 5 and 6 may be used for private data. |
| Lossy Image Compression | (0028,2110) | 3 | Set to 01, if image is lossy compressed. |
| Lossy Image Compression Ratio | (0028,2112) | 3 | Used if lossy compressed. |

#### 4.4.5.2  Image Pixel Module

**TABLE 4-10**
**IMAGE PIXEL MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Samples per Pixel | (0028,0002) | 1 | Value of '1' if Photometric Interpretation element value has value<br>'MONOCHROME2',<br>'PALETTE COLOR'<br><br>Value of '3' when Photometric Interpretation |

| | | | element value has value |
| --- | --- | --- | --- |
| | | | 'RGB', |
| | | | 'YBR_FULL' |
| | | | 'YBR_FULL_422' |
| | | | 'YBR_RCT' |
| | | | 'YBR_ICT' |
| Photometric Interpretation | (0028,0004) | 1 | Defined Values used: |
| | | | 'MONOCHROME2 ', (Encoding and Display) 'PALETTE COLOR' (Display only) |
| | | | 'RGB', (Compression sets to JPEG Lossless) |
| | | | 'YBR_FULL' (Compression sets to RLE) |
| | | | 'YBR_FULL_422' (Compression sets to JPEG Lossy) |
| | | | 'YBR_RCT' (Compression sets to JPEG 2000 Lossless) |
| | | | 'YBR_ICT' (Compression sets to JPEG 2000 Lossy) |
| Rows | (0028,0010) | 1 | Value depends on scanning mode and configuration setup |
| Columns | (0028,0011) | 1 | Value depends on scanning mode and configuration setup |
| Bits Allocated | (0028,0100) | 1 | Value always = 0008H. |
| Bits Stored | (0028,0101) | 1 | Value always = 0008H. |
| High Bit | (0028,0102) | 1 | Value always = 0007H. |
| Pixel Representation | (0028,0103) | 1 | Defined Value '0' - unsigned integer. |
| Pixel Data | (7FE0,0010) | 1 | Pixel Data of image. |
| Planar Configuration | (0028,0006) | 1C | Enumerated Values: |
| | | | 0000H = color-by-pixel, if Photometric Interpretation element value has value RGB, YBR_RCT, YBR_ICT   or YBR_FULL_422. |
| | | | 0001H = color by plane, if Photometric Interpretation element has value YBR_FULL. |
| Pixel Aspect Ratio | (0028,0034) | 1C | Not used |
| Red Palette Color Lookup Table Descriptor | (0028,1101) | 1C | Only used when reading Palette images. |
| Green Palette Color Lookup Table Descriptor | (0028,1102) | 1C | Only used when reading Palette images. |
| Blue Palette Color Lookup Table Descriptor | (0028,1103) | 1C | Only used when reading Palette images. |
| Red Palette Color Lookup Table Data | (0028,1201) | 1C | Only used when reading Palette images. |
| Green Palette Color Lookup Table Data | (0028,1202) | 1C | Only used when reading Palette images. |
| Blue Palette Color Lookup Table Data | (0028,1203) | 1C | Only used when reading Palette images. |

#### 4.4.5.3 Contrast/Bolus Module

**TABLE 4-11**
**CONTRAST/BOLUS MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Contrast/Bolus Agent | (0018,0010) | 2 | Contrast Agent won't be sent if no Contrast Agent was used to acquire images.<br><br>If contrast agent is used, the value is taken from worklist (Requested Contrast Agent). |

#### 4.4.5.4 Palette Color Lookup Table Module

**TABLE 4-12**
**PALETTE COLOR LOOKUP MODULE**

| Attribute Name | Tag | Type | Use |
|---|---|---|---|
| Red Palette Color Lookup Table Descriptor | (0028,1101) | 1 | Only used when reading Palette images. |
| Green Palette Color Lookup Table Descriptor | (0028,1102) | 1 | Only used when reading Palette images. |
| Blue Palette Color Lookup Table Descriptor | (0028,1103) | 1 | Only used when reading Palette images. |
| Red Palette Color Lookup Table Data | (0028,1201) | 1C | Only used when reading Palette images. |
| Green Palette Color Lookup Table Data | (0028,1202) | 1C | Only used when reading Palette images. |
| Blue Palette Color Lookup Table Data | (0028,1203) | 1C | Only used when reading Palette images. |

#### 4.4.5.5 US Region Calibration Module

US Region Calibration Module is used to describe multiple regions. Note: if a multi-frame image has been acquired with different calibration, the US Region Calibration Module will not be used.

**TABLE 4-13**
**US REGION CALIBRATION MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Use |
|---|---|---|---|
| Sequence of Ultrasound Regions | (0018,6011) | 1 | Object contains 1 or more regions |
| >Region Location Min $x_0$ | (0018,6018) | 1 | Value is 0 |
| >Region Location Min $y_0$ | (0018,601A) | 1 | Value is 0 |
| >Region Location Max $x_1$ | (0018,601C) | 1 | Value is image width-1 |
| >Region Location Max $y_1$ | (0018,601E) | 1 | Value is image height-1 |
| >Physical Units X Direction | (0018,6024) | 1 | Enumerated Values supported:<br><br>0003H cm<br>0004H seconds |
| >Physical Units Y Direction | (0018,6026) | 1 | Enumerated Values supported:<br><br>0003H cm<br>0004H seconds<br>0007H cm/sec |

| | | | |
|---|---|---|---|
| >Physical Delta X | (0018,602C) | 1 | Varies with scanning mode |
| >Physical Delta Y | (0018,602E) | 1 | Varies with scanning mode |
| >Reference Pixel $x_0$ | (0018,6020) | 3 | Varies with scanning mode |
| >Reference Pixel $y_0$ | (0018,6022) | 3 | Varies with scanning mode |
| >Ref. Pixel Physical Value X | (0018,6028) | 3 | Varies with scanning mode |
| >Ref. Pixel Physical Value Y | (0018,602A) | 3 | Varies with scanning mode |
| >Region Spatial Format | (0018,6012) | 1 | Supported. The spatial organization of the data within the region. Supported enumerated values are:<br><br>Value      Meaning<br><br>0000H     None or not applicable<br><br>0001H     2D (tissue or flow)<br><br>0002H     M -Mode (tissue or flow)<br><br>0003H     Spectral (CW or PW Doppler)<br><br>Per the DICOM PS3.3-2011, section C.8.5.5.1.1 |
| >Region Data Type | (0018,6014) | 1 | Supported. The type of data within the region.<br><br>Supported enumerated values are:<br><br>Value    Meaning<br><br>0000H   None or not applicable<br><br>0001H   Tissue<br><br>0002H   Color Flow<br><br>0003H   PW Spectral Doppler<br><br>0004H   CW Spectral Doppler<br><br>0006H   Doppler Mode Trace<br><br>Per the DICOM PS3.3-2011, section C.8.5.5.1.2 |
| >Region Flags | (0018,6016) | 1 | Bit 0: 0 = Opaque<br><br>Bit 1: 0 = Not Protected because there may be other regions within the image<br>Bit 2: 0 = Velocity |
| >Transducer Frequency | (0018,6030) | 3 | Supported |
| >Pulse Repetition Frequency | (0018,6032) | 3 | Supported |

### 4.4.5.6  US Image Module

This section specifies the Attributes that describe ultrasound images.

**TABLE 4-14**
**US IMAGE MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Use |
|---|---|---|---|
| Samples Per Pixel | (0028,0002) | 1 | Value of '1' if Photometric Interpretation element value has value<br><br>'MONOCHROME2' or<br><br>'PALETTE COLOR'<br><br><br>Value of '3' when Photometric Interpretation |

| | | | element value has value |
|---|---|---|---|
| | | | 'RGB', (Compression sets to JPEG Lossless) |
| | | | 'YBR_FULL' (Compression sets to RLE) |
| | | | 'YBR_FULL_422' (Compression sets to JPEG Lossy) |
| | | | 'YBR_RCT' (Compression sets to JPEG 2000 Lossless) |
| | | | 'YBR_ICT' (Compression sets to JPEG 2000 Lossy) |
| Photometric Interpretation | (0028,0004) | 1 | Defined Values used:<br>  'MONOCHROME2',<br>  'RGB',<br>  'PALETTE COLOR'<br>  'YBR_FULL',<br>  'YBR_FULL_422',<br>  'YBR_RCT',<br>  'YBR_ICT' |
| Bits Allocated | (0028,0100) | 1 | Value always = 0008H |
| Bits Stored | (0028,0101) | 1 | Value always = 0008H |
| High Bit | (0028,0102) | 1 | Value always = 0007H |
| Planar Configuration | (0028,0006) | 1C | Enumerated Values:<br><br>0000H = color-by-pixel, if Photometric Interpretation element value has value RGB, YBR_RCT, YBR_ICT   or YBR_FULL_422.<br><br>0001H = color by plane, if Photometric Interpretation element has value YBR_FULL. |
| Pixel Representation | (0028,0103) | 1 | Always 0000H = unsigned integer. |
| Frame Increment Pointer | (0028,0009) | 1C | Export: Is set to Frame Time (0018,1063) or Frame Time Vector (0018,1065) if the image is multiframe IOD, Not used if the image is a single frame IOD. |
| Image Type | (0008,0008) | 2 | The first two values contain 'ORIGINAL/PRIMARY' or<br>'DERIVED/ PRIMARY'.<br><br>Value 3 is the description of the type of application<br>per the DICOM PS3.3-2011, section C.8.5.6.1.1;<br>Supported enumerated values are:<br>ABDOMINAL<br>GYNECOLOGY<br>OBSTETRICAL<br>PEDIATRIC<br>SMALL PARTS |

| | | | VASCULAR |
| | | | SCROTAL |
| | | | INTRACARDIAC |
| | | | |
| | | | Value 4 is a description of the mode per the DICOM PS3.3-2011, section C.8.5.6.1.1; |
| | | | Supported enumerated values are sum of values in hexadecimal encoded, which based on: |
| | | | |
| | | | Value      Meaning |
| | | | 0001        2D Imaging |
| | | | 0002        M- Mode |
| | | | 0004        CW Doppler |
| | | | 0008        PW Doppler |
| | | | 0010      Color Doppler |
| | | | 0020      Color M-Mode |
| | | | 0040      3D Rendering |
| | | | 0100      Color Power Mode |
| | | | |
| | | | Values 5 and 6 may be used for private data. |
| Lossy Image Compression | (0028,2110) | 1C | Set to 01 if image is compressed using JPEG Baseline or JPEG 2000 Lossy compression. |
| Number of Stages | (0008,2124) | 2C | Used in case of Stress Echo exams. |
| Number of Views in Stage | (0008,212A) | 2C | Used in case of Stress Echo exams. |
| Stage Name | (0008,2120) | 3 | Name of stage of stress test. Sent if image is acquired in a stress test. The name is defined in the User Interface. |
| Stage Code Sequence | (0040,000A) | 3 | Used in case of Stress Echo exams. Please refer Table: Table 4-15 for Stage Code Sequence macros. |
| Stage Number | (0008,2122) | 3 | Number of stage, starting at one. Sent if image is acquired in a stress test. |
| View Name | (0008,2127) | 3 | Name of view of stress test. Sent if image is acquired in a stress test. The name is defined in the User Interface. |
| View Number | (0008,2128) | 3 | Number of view, starting at one. Sent if image is acquired in a stress test. |
| View Code Sequence | (0054,0220) | 3 | Used in case of Stress Echo exams. Please refer Table: Table 4-16 for View Code Sequence macros. |
| Acquisition DateTime | (0008,002A) | 1C | Not Used. |
| Heart Rate | (0018,1088) | 3 | Set to heart rate |

**TABLE 4-15**
**STAGE CODE SEQUENCE MAPPING**

| GE Value | DICOM Mapping |
|---|---|
| Rest | (F-01604,SRT,Resting State) |
| Peak | (F-05028,SRT,Peak cardiac stress state) |
| Baseline | (F-01604,SRT,Resting State) |
| Low dose | (F-05019,SRT,Cardiac stress state) |
| Peak dose | (F-05028,SRT,Peak cardiac stress state) |
| Recovery | (F-05018,SRT,Cardiac stress recovery state) |

**TABLE 4-16**
**VIEW CODE SEQUENCE MAPPING**

| GE Value | DICOM Mapping |
|---|---|
| 4CH | (G-A19C,SRT,Apical four chamber) |
| 2CH | (G-A19B,SRT,Apical two chamber) |
| PLAX | (G-0396,SRT,Parasternal long axis) |
| APLAX | (G-0395,SRT,Apical long axis) |
| SAX-PM | (G-039B,SRT,Parasternal short axis at the Papillary Muscle level) |
| SAX-MV | (G-039A,SRT,Parasternal short axis at the Mitral Valve level) |

#### 4.4.5.7 VOI LUT module

**TABLE 4-17**
**VOI LUT MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Window Center | (0028,1050) | 1C | Value set to 127 if Photometric Interpretation has value MONOCHROME2. |
| Window Width | (0028,1051) | 1C | Value set to 256 if Photometric Interpretation has value MONOCHROME2. |

#### 4.4.5.8 SOP Common Module

**TABLE 4-18**
**SOP COMMON MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| SOP Class UID | (0008,0016) | 1 | Set to<br><br>"1.2.840.10008.5.1.4.1.1.3.1"<br>"1.2.840.10008.5.1.4.1.1.3"<br>"1.2.840.10008.5.1.4.1.1.6.1"<br>"1.2.840.10008.5.1.4.1.1.6"<br>"1.2.840.10008.5.1.4.1.1.7"<br>"1.2.840.10008.5.1.4.1.1.6.2"<br><br>"1.2.840.10008.5.1.4.1.1.88.59" or<br><br>"1.2.840.10008.5.1.4.1.1.88.33" |
| SOP Instance UID | (0008,0018) | 1 | Uniquely generated by the equipment |

| Specific Character Set | (0008,0005) | 1C | Set to ISO-IR100 if extended characters are used. |
| | | | Image Read: images using other set than ISO-IR 100 are rejected. |
| Instance Number | (0020,0013) | 3 | Internal value which is incremented for each captured image within a series. (within an exam) |

# 5. ULTRASOUND MULTI-FRAME IMAGE INFORMATION OBJECT IMPLEMENTATION

## 5.1 INTRODUCTION

This section specifies the use of the DICOM US Multi-Frame Image IOD to represent the information included in US Multi-Frame Images produced by this implementation. Corresponding attributes are conveyed using the module construct.

## 5.2 LOGIQ P8/P9/P10 SCANNER MAPPING OF DICOM ENTITIES

The LOGIQ P8/P9/P10 Scanner maps DICOM Information Entities to local Information Entities in the product's database and user interface.

**TABLE 5-1**
**MAPPING OF DICOM ENTITIES TO LOGIQ P8/P9/P10 SCANNER ENTITIES**

| DICOM IE | LOGIQ P8/P9/P10 Scanner Entity |
|----------|-------------------------------|
| Patient | Patient |
| Study | Exam |
| Series | Series |
| Image | Image |

## 5.3 IOD MODULE TABLE

The Ultrasound Multi-Frame Image Information Object Definition comprises the modules of the following table. The elements not listed are not used by the application.

**TABLE 5-2**
**US MULTI-FRAME IMAGE IOD MODULES**

| Entity Name | Module Name | Usage | Reference |
|-------------|-------------|-------|-----------|
| Patient | Patient | Used | 4.4.1.1 |
| | Clinical Trial Subject | Not used | N/A |
| Study | General Study | Used | 4.4.2.1 |
| | Patient Study | Used | 4.4.2.2 |
| | Clinical Trial Study | Not used | N/A |
| Series | General Series | Used | 4.4.3.1 |
| | Clinical Trial Series | Not used | N/A |
| Frame of Reference | Frame of Reference | Not Used | N/A |
| | Synchronization | Not Used | N/A |
| Equipment | General Equipment | Used | 4.4.4.1 |
| Image | General Image | Used | 4.4.5.1 |
| | Image Pixel | Used | 4.4.5.2 |
| | Contrast/Bolus | Used | 4.4.5.3 |

| | | |
|---|---|---|
| Cine | Used | 5.4.1.1 |
| Multi-Frame | Used | 5.4.1.2 |
| Frame Pointers | Not used | N/A |
| Palette Color Lookup Table | Used | 4.4.5.4 |
| Device | Not used | N/A |
| US Region Calibration | Used | 4.4.5.5 |
| US Image | Used | 4.4.5.6 |
| VOI LUT | Used | 0 |
| SOP Common | Used | 4.4.5.8 |

## 5.4 INFORMATION MODULE DEFINITIONS

Please refer to DICOM Part 3 (Information Object Definitions) for a description of each of the entities, modules, and attributes contained within the US Multi-Frame Information Object.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included for completeness and to define what values they may take and where these values are obtained from when generating the instance. It should be noted that they are the same ones as defined in the DICOM Standard Part 3 (Information Object Definitions). Also note that Attributes not present in tables are not supported.

### 5.4.1 Image Entity Modules

#### 5.4.1.1 Cine Module

**TABLE 5-3**
**CINE MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Preferred Playback Sequencing | (0018,1244) | 3 | Supported |
| Frame Time | (0018,1063) | 1C | Is set to the interframe time |
| Frame Time Vector | (0018,1065) | 1C | Supported. Reading: Average value is set to interframe time |
| Start Trim | (0008,2142) | 3 | Supported |
| Stop Trim | (0008,2143) | 3 | Supported |
| Recommended Display Frame Rate | (0008,2144) | 3 | Supported |
| Cine Rate | (0018,0040) | 3 | Supported |
| Frame Delay | (0018,1066) | 3 | Supported |
| Effective Duration | (0018,0072) | 3 | Supported |
| Actual Frame Duration | (0018,1242) | 3 | Supported |

**5.4.1.2  Multi-Frame Module**

TABLE 5-4
MULTI-FRAME MODULE ATTRIBUTES

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Number of Frames | (0028,0008) | 1 | Is set to the number of frames in image |
| Frame Increment Pointer | (0028,0009) | 1 | Is set to Frame Time (0018,1063) or Frame Time Vector (0018,1065) |

# 6. ENHANCED US VOLUME INFORMATION OBJECT IMPLEMENTATION

## 6.1 INTRODUCTION

This section specifies the use of the DICOM Enhanced US Volume IOD to represent the information included in Enhanced US Volume Images produced by this implementation. Corresponding attributes are conveyed using the module construct.

## 6.2 LOGIQ P8/P9/P10 SCANNER MAPPING OF DICOM ENTITIES

The LOGIQ P8/P9/P10 Scanner maps DICOM Information Entities to local Information Entities in the product's database and user interface.

**TABLE 6-1**
**MAPPING OF DICOM ENTITIES TO LOGIQ P8/P9/P10 SCANNER ENTITIES**

| DICOM IE | LOGIQ P8/P9/P10 Scanner Entity |
|----------|--------------------------------|
| Patient | Patient |
| Study | Exam |
| Series | Series |
| Image | Image |

## 6.3 IOD MODULE TABLE

The Enhanced US Volume Information Object Definition comprises the modules of the following table. The elements not listed are not used by the application.

**TABLE 6-2**
**ENHANCED US VOLUME IOD MODULES**

| Entity Name | Module Name | Usage | Reference |
|-------------|-------------|-------|-----------|
| Patient | Patient | Used | 4.4.1.1 |
| | Clinical Trial Subject | Not used | N/A |
| Study | General Study | Used | 4.4.2.1 |
| | Patient Study | Used | 4.4.2.2 |
| | Clinical Trial Study | Not used | N/A |
| Series | General Series | Used | 4.4.3.1 |
| | Enhanced US Series | Used | 6.4.1.1 |
| | Clinical Trial Series | Not used | N/A |
| Frame of Reference | Frame of Reference | Used | 6.4.2.1 |
| | Ultrasound Frame of Reference | Used | 6.4.2.1.1 |

| | Synchronization | Used | 6.4.2.2 |
|---|---|---|---|
| Equipment | General Equipment | Used | 4.4.4.1 |
| | Enhanced General Equipment | Used | 6.4.3.1 |
| Image | General Image | Used | 4.4.5.1 |
| | Image Pixel | Used | 4.4.5.2 |
| | Enhanced Contrast/Bolus | Not used | N/A |
| | Multi-frame Functional Groups | Used | 6.4.4.1 |
| | Multi-frame Dimension | Used | 6.4.4.2 |
| | Cardiac Synchronization | Not used | N/A |
| | Respiratory Synchronization | Not used | N/A |
| | Device | Not used | N/A |
| | Acquisition Context | Used | 6.4.4.3 |
| | Specimen | Not used | N/A |
| | Enhanced Palette Color Lookup Table | Used | 6.4.4.4 |
| | Enhanced US Image | Used | 6.4.4.5 |
| | IVUS Image | Not used | N/A |
| | Excluded Intervals | Not used | N/A |
| | ICC Profile | Not used | N/A |
| | SOP Common | Used | 4.4.5.8 |
| | Frame Extraction | Not used | N/A |

## 6.4 INFORMATION MODULE DEFINITIONS

Please refer to DICOM Part 3 (Information Object Definitions) for a description of each of the entities, modules, and attributes contained within the Enhanced US Volume Information Object.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included for completeness and to define what values they may take and where these values are obtained from when generating the instance as well as what are the expected values when loading such instance. It should be noted that they are the same ones as defined in the DICOM Standard Part 3 (Information Object Definitions). Also note that Attributes not present in tables are not supported.

**6.4.1 Series Entity Modules**

**6.4.1.1 Enhanced US Series**

TABLE 6-3
ENHANCED US SERIES MODULE ATTRIBUTES

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Modality | (0008,0060) | 1 | Set to US. |
| Referenced Performed Procedure Step Sequence | (0008,1111) | 1C | Used if Modality Performed Procedure Step is enabled. |
| >Include 'SOP Instance Reference Macro' Table 10-11 | | | |
| Performed Protocol Code Sequence | (0040,0260) | 1C | Not Used. |
| Performed Protocol Type | (0040,0261) | 1C | Used if Modality Performed Procedure Step is enabled. |

**6.4.2 Frame Of Reference Entity Modules**

**6.4.2.1 Frame Of Reference Module**

TABLE 6-4
FRAME OF REFERENCE MODULE ATTRIBUTES

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Frame of Reference UID | (0020,0052) | 1 | Used. |
| Position Reference Indicator | (0020,1040) | 2 | Set as empty. |

**6.4.2.1.1 Ultrasound Frame of Reference**

TABLE 6-5
ULTRASOUND FRAME OF REFERENCE MODULE ATTRIBUTES

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Volume Frame of Reference UID | (0020,9312) | 1 | Used. |
| Ultrasound Acquisition Geometry | (0020,9307) | 1 | Set with defined term "APEX". |
| Apex Position | (0020,9308) | 1C | Used. |
| Volume to Transducer Mapping Matrix | (0020,9309) | 1 | Used. |
| Patient Frame of Reference Source | (0020,930C) | 1C | Not used. |
| Table Frame of Reference UID | (0020,9313) | 1C | Not used. |
| Volume to Table Mapping Matrix | (0020,930A) | 1C | Not used. |

**6.4.2.2 Synchronization Module**

TABLE 6-6
SYNCHRONIZATION MODULE ATTRIBUTES

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Synchronization Frame of Reference UID | (0020,0200) | 1 | Used. |

| | | | |
|---|---|---|---|
| Synchronization Trigger | (0018,106A) | 1 | Enumerated Value "NO TRIGGER" used. |
| Synchronization Channel | (0018,106C) | 1C | Not used. |
| Acquisition Time Synchronized | (0018,1800) | 1 | Enumerated Value "N" used. |

### 6.4.3 Equipment Entity Modules

#### 6.4.3.1 Enhanced General Equipment Module

**TABLE 6-7**
**ENHANCED GENERAL EQUIPMENT MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Manufacturer | (0008,0070) | 1 | Set with "GE Healthcare". |
| Manufacturer's Model Name | (0008,1090) | 1 | Set with "LOGIQ P9 or P7". |
| Device Serial Number | (0018,1000) | 1 | Set with serial number of device. |
| Software Versions | (0018,1020) | 1 | Is set to LOGIQ P9 or P7 software version. |

### 6.4.4 Image Entity Modules

#### 6.4.4.1 Multi-frame Functional Groups

**TABLE 6-8**
**MULTI-FRAME FUNCTIONAL GROUPS MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Shared Functional Groups Sequence | (5200,9229) | 2 | Used. |
| >US Image Description Sequence | (0018,9806) | 1 | Used. |
| >>Frame Type | (0008,9007) | 1 | The first two values contain 'ORIGINAL/PRIMARY' and 'DERIVED/ PRIMARY'. |
| >>Volumetric Properties | (0008,9206) | 1 | Set with "VOLUME". |
| >>Volume Based Calculation Technique | (0008,9207) | 1 | Set with "NONE". |
| >Plane Orientation (Volume) Sequence | (0020,930F) | 1 | Used. |
| >>Image Orientation (Volume) | (0020,9302) | 1 | Set with "1¥0¥0¥0¥1¥0". |
| >Temporal Position Sequence | (0020,9310) | 1 | Filled with Temporal position value. Not used in case of multiple volumes (4D). |
| >>Temporal Position Time Offset | (0020,930D) | 1 | Used. |
| >Frame VOI LUT Sequence | (0028,9132) | 1 | Used. |
| >>Window Center | (0028,1050) | 1 | Used. |
| >>Window Width | (0028,1051) | 1 | Used. |
| Per-frame Functional Groups Sequence | (5200,9230) | 1 | Used. |
| >Image Data Type Sequence | (0018,9807) | 1 | Used. |
| >>Data Type | (0018,9808) | 1 | Set with "TISSUE_INTENSITY" or "FLOW_VELOCITY" or "FLOW_POWER". |
| >>Aliased Data Type | (0018,980B) | 1 | Set to "NO". |

| >Frame Content Sequence | (0020,9111) | 1 | Used. |
|---|---|---|---|
| >>Frame Reference DateTime | (0018,9151) | 1C | Set with the date and time of the acquisition frame created. Used if Frame Type (0008,9007) Value 1 of this frame is ORIGINAL. May be present otherwise.. |
| >>Frame Acquisition DateTime | (0018,9074) | 1C | Set with the date and time of the acquisition frame started. Used if Frame Type (0008,9007) Value 1 of this frame is ORIGINAL. May be present otherwise. |
| >>Frame Acquisition Duration | (0018,9220) | 1C | Set with the duration of the time. Used if Frame Type (0008,9007) Value 1 of this frame is ORIGINAL. May be present otherwise. |
| >>Dimension Index Values | (0020,9157) | 1C | Set with 3 values. Each value fills with the dimension specific information. Used if Frame Type (0008,9007) Value 1 of this frame is ORIGINAL. May be present otherwise. |
| >Plane Position (Volume) Sequence | (0020,930E) | 1 | Used. |
| >>Image Position (Volume) | (0020,9301) | 1 | First value (X) and second value (Y) are set to zero. The third value is set to the plane position in mm. |
| >Temporal Position Sequence | (0020,9310) | 1 | Filled with Temporal position value. Not used in case of single volume (3D). |
| >>Temporal Position Time Offset | (0020,930D) | 1 | Used. |
| Instance Number | (0020,0013) | 1 | Used. |
| Content Date | (0008,0023) | 1 | Used. |
| Content Time | (0008,0033) | 1 | Used. |
| Number of Frames | (0028,0008) | 1 | Used. |
| Concatenation UID | (0020,9161) | 1C | Not used. |

**6.4.4.2 Multi-frame Dimension**

TABLE 6-9
MULTI-FRAME DIMENSION MODULE ATTRIBUTES

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Dimension Organization Sequence | (0020,9221) | 1 | Used. |
| >Dimension Organization UID | (0020,9164) | 1 | Used. |
| Dimension Organization Type | (0020,9311) | 3 | Set with "3D" in case of Static 3D dataset or "3D_TEMPORAL" in case of 4D dataset. |
| Dimension Index Sequence | (0020,9222) | 1 | Three items are sent. |
| >Dimension Index Pointer | (0020,9165) | 1 | There are three values. "Temporal Position Time Offset" or "Image Position (Volume)" or "Data Type". |
| >Functional Group Pointer | (0020,9167) | 1C | There are three values. "Temporal Position Sequence" or "Plane Position Volume Sequence" or "Image Data Type Sequence". |
| >Dimension Organization UID | (0020,9164) | 1C | Set with unique id. |

**6.4.4.3 Acquisition Context**

TABLE 6-10
ACQUISITION CONTEXT MODULE ATTRIBUTES

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Acquisition Context Sequence | (0040,0555) | 2 | Set as empty. |

**6.4.4.4 Enhanced Palette Color Lookup Table**

TABLE 6-11
ENHANCED PALETTE COLOR LOOKUP TABLE MODULE ATTRIBUTES

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Data Frame Assignment Sequence | (0028,1401) | 1 | Sequence of items each assigning frames of one particular value of Data Type (0018,9808) to a data path in the Enhanced Blending and Display Pipeline. One, two, or three items shall be included in this sequence. |
| >Data Type | (0018,9808) | 1 | Set with "TISSUE_INTENSITY" or "FLOW_VELOCITY" or "FLOW_POWER". |
| >Data Path Assignment | (0028,1402) | 1 | Set with following Enumerated values. PRIMARY_SINGLE SECONDARY_SINGLE SECONDARY_HIGH SECONDARY_LOW |

| | | | |
|---|---|---|---|
| >Window Center | (0028,1050) | 1 | Filled with window center value. |
| >Window Width | (0028,1051) | 1 | Filled with window width value. |
| Blending LUT 1 Sequence | (0028,1404) | 1C | Used if there are one or more items of the Data Path Assignment Sequence (0028,1402) other than PRIMARY_PVALUES. |
| >Blending LUT 1 Transfer Function | (0028,1405) | 1 | Supported Enumerated values: CONSTANT ALPHA_1 ALPHA_2 TABLE See DICOM PS3.3, section C.7.6.23.4 for details. |
| >Blending Weight Constant | (0028,1406) | 1C | Used if (0028,1405) value is "CONSTANT". |
| >Blending Lookup Table Descriptor | (0028,1407) | 1C | Used if (0028,1405) value is "TABLE". |
| >Blending Lookup Table Data | (0028,1408) | 1C | Used if (0028,1405) value is "TABLE". |
| Blending LUT 2 Sequence | (0028,140C) | 1C | Used if there are one or more items of the Data Path Assignment Sequence (0028,1402) other than PRIMARY_PVALUES. |
| >Blending LUT 2 Transfer Function | (0028,140D) | 1 | Supported Enumerated values: CONSTANT ONE_MINUS ALPHA_1 ALPHA_2 TABLE See DICOM PS3.3, C.7.6.23.4 for details. |
| >Blending Weight Constant | (0028,1406) | 1C | Used if (0028,140D) is CONSTANT. |
| >Blending Lookup Table Descriptor | (0028,1407) | 1C | Used if (0028,140D) is TABLE. |
| >Blending Lookup Table Data | (0028,1408) | 1C | Used if (0028,140D) is TABLE. |
| Enhanced Palette Color Lookup Table Sequence | (0028,140B) | 1C | Used if Data Path Assignment (0028,1402) is present with a value other than PRIMARY_PVALUES. |
| >Data Path ID | (0028,140E) | 1 | Used below enumerated values. PRIMARY SECONDARY |
| >RGB LUT Transfer Function | (0028,140F) | 1 | Set with "TABLE". |
| >Alpha LUT Transfer Function | (0028,1410) | 1 | Set with either "NONE" or "TABLE". |
| >Red Palette Color Lookup Table Descriptor | (0028,1101) | 1C | Used. |
| >Green Palette Color Lookup Table Descriptor | (0028,1102) | 1C | Used. |
| >Blue Palette Color Lookup Table Descriptor | (0028,1103) | 1C | Used. |
| >Alpha Palette Color Lookup Table Descriptor | (0028,1104) | 1C | Used. |
| >Red Palette Color Lookup Table Data | (0028,1201) | 1C | Used. |
| >Green Palette Color Lookup Table Data | (0028,1202) | 1C | Used. |

| | | | |
|---|---|---|---|
| >Blue Palette Color Lookup Table Data | (0028,1203) | 1C | Used. |
| >Alpha Palette Color Lookup Table Data | (0028,1204) | 1C | Used. |
| ICC Profile | (0028,2000) | 1C | Not used. |

### 6.4.4.5 Enhanced US Image

**TABLE 6-12**
**ENHANCED US IMAGE MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Image Type | (0008,0008) | 1 | The first two values contain 'ORIGINAL/PRIMARY' and 'DERIVED/ PRIMARY'. |
| Samples Per Pixel | (0028,0002) | 1 | Set with 1. |
| Photometric Interpretation | (0028,0004) | 1 | Set with MONOCHROME2. |
| Bits Allocated | (0028,0100) | 1 | Set with 8. |
| Bits Stored | (0028,0101) | 1 | Set with 8. |
| High Bit | (0028,0102) | 1 | Set with 7. |
| Pixel Representation | (0028,0103) | 1 | Set with 0. |
| Dimension Organization Type | (0020,9311) | 1 | Set with "3D" in case of Static 3D dataset or "3D_TEMPORAL" in case of 4D dataset. |
| Acquisition DateTime | (0008,002A) | 1 | Used. |
| Acquisition Duration | (0018,9073) | 1 | Used. |
| Pixel Spacing | (0028,0030) | 1 | Used. |
| Position Measuring Device Used | (0018,980C) | 1C | Set with "RIGID". |
| Lossy Image Compression | (0028,2110) | 1C | Not used since Lossy compression is not an option. |
| Lossy Image Compression Ratio | (0028,2112) | 1C | Not used since Lossy compression is not an option. |
| Lossy Image Compression Method | (0028,2114) | 1C | Not used since Lossy compression is not an option. |
| Presentation LUT Shape | (2050,0020) | 1 | Set with "IDENTITY". |
| Rescale Intercept | (0028,1052) | 1 | Set to 0. |
| Rescale Slope | (0028,1053) | 1 | Set to 1. |
| Source Image Sequence | (0008,2112) | 1C | Not used. |
| Number of Stages | (0008,2124) | 1C | Not used. |
| Stage Number | (0008,2122) | 1C | Not used. |
| Stage Code Sequence | (0040,000A) | 1C | Not used. |
| View Code Sequence | (0054,0220) | 1 | Used. |
| >Code Value | (0008,0100) | 1 | Set to "G-A117". |
| >Coding Scheme Designator | (0008,0102) | 1 | Set to "SRT". |
| >Code Meaning | (0008,0104) | 1 | Set to "Transverse". |
| Burned In Annotation | (0028,0301) | 1 | Set to "NO". |

| | | | |
|---|---|---|---|
| Transducer Scan Pattern Code Sequence | (0018,9809) | 1 | The scan pattern the transducer is capable of. Only a single item is included in this sequence. See DICOM PS3.3, C.8.24.3.4 for further explanation. |
| >Code Value | (0008,0100) | 1 | Set to "125241". |
| >Coding Scheme Designator | (0008,0102) | 1 | Set to "DCM". |
| >Code Meaning | (0008,0104) | 1 | Set to "Plane scan pattern". |
| Transducer Geometry Code Sequence | (0018,980D) | 1 | Geometric structure of the transducer. Only a single item shall be included in this sequence. See DICOM PS3.3, C.8.24.3.4 for further explanation. |
| >Code Value | (0008,0100) | 1 | Set to "125254" if the volume acquired using Mechanical 4D probes or "125253" in case of Tru3D probes. |
| >Coding Scheme Designator | (0008,0102) | 1 | Set to "DCM". |
| >Code Meaning | (0008,0104) | 1 | Set to "Sector ultrasound transducer geometry" if the volume acquired with Mechanical 4D probes or "Curved linear ultrasound transducer geometry" in case of Tru3D probes. |
| Transducer Beam Steering Code Sequence | (0018,980E) | 1 | Technique used by the transducer for beam steering. One or more items shall be included in this sequence. If more than one item is present, the order is significant from plane-forming technique to volume-forming technique. See DICOM PS3.3, C.8.24.3.4 for further explanation. |
| >Code Value | (0008,0100) | 1 | Set to "125258". |
| >Coding Scheme Designator | (0008,0102) | 1 | Set to "DCM". |
| >Code Meaning | (0008,0104) | 1 | Set to "Mechanical beam steering". |
| Transducer Application Code Sequence | (0018,980F) | 1 | The primary clinical application of the transducer. Only a single Item is included in this sequence. See DICOM PS3.3, C.8.24.3.4 for further explanation. |
| >Code Value | (0008,0100) | 1 | Set to "125261". |
| >Coding Scheme Designator | (0008,0102) | 1 | Set to "DCM". |
| >Code Meaning | (0008,0104) | 1 | Set to "External Transducer". |
| Mechanical Index | (0018,5022) | 1 | Used. |
| Bone Thermal Index | (0018,5024) | 1 | Used. |
| Cranial Thermal Index | (0018,5026) | 1 | Used. |
| Soft Tissue Thermal Index | (0018,5027) | 1 | Used. |
| Depth(s) of Focus | (0018,9801) | 1 | Used. |

| Depth of Scan Field | (0018,5050) | 1 | Used. |
|---|---|---|---|
| Anatomic Region Sequence | (0008,2218) | 1 | Set to (GEU-1099-1, 99GEMS, "Ultrasound Region") |

# 7. SECONDARY CAPTURE INFORMATION OBJECT IMPLEMENTATION

## 7.1 INTRODUCTION

This section specifies the use of the DICOM SC Image IOD to represent the information included in SC Images produced by this implementation. Corresponding attributes are conveyed using the module construct.

## 7.2 LOGIQ P8/P9/P10 SCANNER MAPPING OF DICOM ENTITIES

The LOGIQ P8/P9/P10 Scanner maps DICOM Information Entities to local Information Entities in the product's database and user interface.

**TABLE 7-1**
**MAPPING OF DICOM ENTITIES TO LOGIQ P8/P9/P10 SCANNER ENTITIES**

| DICOM IE | LOGIQ P8/P9/P10 Scanner Entity |
|----------|-------------------------------|
| Patient | Patient |
| Study | Exam |
| Series | Series |
| Image | Image |

## 7.3 IOD MODULE TABLE

The Secondary Capture Information Object Definition comprises the modules of the following table. The elements not listed are not used by the application.

**TABLE 7-2**
**SC IMAGE IOD MODULES**

| Entity Name | Module Name | Usage | Reference |
|---|---|---|---|
| Patient | Patient | Used | 4.4.1.1 |
| | Clinical Trial Subject | Not used | N/A |
| Study | General Study | Used | 4.4.2.1 |
| | Patient Study | Used < Need to specify when> | 4.4.2.2 |
| | Clinical Trial Study | Not used | N/A |
| Series | General Series | Used | 4.4.3.1 |
| | Clinical Trial Series | Not used | N/A |
| Equipment | General Equipment | Used < Need to specify when> | 4.4.4.1 |
| | SC Equipment | Used | 7.4.1.1 |
| Image | General Image | Used | 4.4.5.1 |
| | Image Pixel | Used | 4.4.5.2 |
| | Device | Not used | N/A |
| | SC Image | Used | 7.4.2.1 |
| | Overlay Plane | Not used | N/A |
| | Modality LUT | Not used | N/A |
| | VOI LUT | Used < Need to specify when> | 0 |
| | SOP Common | Used | 4.4.5.8 |

## 7.4  INFORMATION MODULE DEFINITIONS

Please refer to DICOM Standard Part 3 (Information Object Definitions) for a description of each of the entities and modules contained within the SC Information Object.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included for completeness and to define what values they may take and where these values are obtained from when generating the instance. It should be noted that they are the same ones as defined in the DICOM Standard Part 3 (Information Object Definitions). Also note that Attributes not present in tables are not supported.

### 7.4.1  Equipment Entity Modules

#### 7.4.1.1  SC Equipment Module

**TABLE 7-3**
**SC EQUIPMENT MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Use |
|---|---|---|---|
| Conversion Type | (0008,0064) | 1 | Set to "WSD" |
| Modality | (0008,0060) | 3 | Defined Value "US" used. When reading SC all modalities are accepted |
| Secondary Capture Device ID | (0018,1010) | 3 | Defined Value "LOGIQ P9 or P7" |
| Secondary Capture Device Manufacturer | (0018,1016) | 3 | Implementation defined string "GE Healthcare" |
| Secondary Capture Device Manufacturer's Model Name | (0018,1018) | 3 | Implementation defined string "LOGIQ P9 or P7" |

| Secondary Capture Device Software Version | (0018,1019) | 3 | Is set to LOGIQ P9 or P7 software version |
|---|---|---|---|

### 7.4.2  Image Entity Modules

#### 7.4.2.1  SC Image Module

**TABLE 7-4**
**SC IMAGE MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Use |
|---|---|---|---|
| Date of Secondary Capture | (0018,1012) | 3 | Image capture date |
| Time of Secondary Capture | (0018,1014) | 3 | Image capture time |

# 8. COMPREHENSIVE STRUCTURED REPORT INFORMATION OBJECT IMPLEMENTATION

## 8.1 INTRODUCTION

This section specifies the use of the DICOM Comprehensive SR IOD to represent results produced by this implementation. Corresponding attributes are conveyed using the module construct.

## 8.2 LOGIQ P8/P9/P10 SCANNER MAPPING OF DICOM ENTITIES

The LOGIQ P8/P9/P10 Scanner maps DICOM Information Entities to local Information Entities in the product's database and user interface.

**TABLE 8-1**
**MAPPING OF DICOM ENTITIES TO LOGIQ P8/P9/P10 SCANNER ENTITIES**

| DICOM IE | LOGIQ P8/P9/P10 Scanner Entity |
|----------|-------------------------------|
| Patient | Patient |
| Study | Exam |
| Series | Series |
| Document | Document |

## 8.3 IOD MODULE TABLE

The Comprehensive Structured Report Information Object Definitions comprise the modules of the following tables, plus Standard Extended and Private attributes. Standard Extended and Private attributes are described in Section 8.5. The elements not listed are not used by the application.

The contents of the SR Document Content are constrained by the supported template, as identified in Section 8.4.2.2.1.1. Standard, Standard Extended and Private templates are further described in Section 8.7.

**TABLE 8-2**
**STRUCTURE REPORT IOD MODULES**

| Entity Name | Module Name | Usage | Reference |
|-------------|-------------|-------|-----------|
| Patient | Patient | Used | 4.4.1.1 |
| | Specimen Identification | Not used | N/A |
| | Clinical Trial Subject | Not used | N/A |
| Study | General Study | Used | 4.4.2.1 |
| | Patient Study | Used | 4.4.2.2 |
| | Clinical Trial Study | Not used | N/A |
| Series | SR Document Series | Used | 8.4.1.1 |
| | Clinical Trial Series | Not used | N/A |
| Equipment | General Equipment | Used | 4.4.4.1 |
| Document | SR Document General | Used | 8.4.2.1 |

| | | |
|---|---|---|
| SR Document Content | Used | 8.4.2.2 |
| SOP Common | Used | 4.4.5.8 |

## 8.4 INFORMATION MODULE DEFINITIONS

Please refer to DICOM Part 3 (Information Object Definitions) for a description of each of the entities, modules, and attributes contained within the SR Information Objects.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included for completeness and to define what values they may take and where these values are obtained from when generating the instance. It should be noted that they are the same ones as defined in the DICOM Standard Part 3 (Information Object Definitions). Also note that Attributes not present in tables are not supported.

### 8.4.1 Series Entity Modules

#### 8.4.1.1 SR Document Series Module

**TABLE 8-3**
**SR DOCUMENT SERIES MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Use |
|---|---|---|---|
| Modality | (0008,0060) | 1 | Value = SR |
| Series Instance UID | (0020,000E) | 1 | Uniquely generated by the equipment |
| Series Number | (0020,0011) | 1 | Internal number which is incremented for each new exam within a study. |
| Referenced Performed Procedure Step Sequence | (0008,1111) | 2 | Sent as empty. |
| > *'Referenced SOP Class / Instance UIDs'* | | | |

### 8.4.2 Document Entity Modules

#### 8.4.2.1 SR Document General Module

**TABLE 8-4**
**SR DOCUMENT GENERAL MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Use |
|---|---|---|---|
| Instance Number | (0020,0013) | 1 | Internal number which is 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, based upon user action that invoked the use of the object |
| Content Time | (0008,0033) | 1 | Time of creation, based upon user action that invoked the use of the object. |
| 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 Study Instance UID in General Study Module |

| | | | |
|---|---|---|---|
| >Referenced Study Sequence | (0008,1110) | 2 | Sent as empty. |
| >>*Include 'SOP Instance Reference Macro'* | | | |
| >Accession Number | (0008,0050) | 2 | Taken from Accession Number in General Study Module |
| >Placer Order Number/Imaging Service Request | (0040,2016) | 2 | Sent as empty. |
| >Filler Order Number/Imaging Service Request | (0040,2017) | 2 | Sent as empty. |
| >Requested Procedure ID | (0040,1001) | 2 | Taken from worklist if it is there |
| >Requested Procedure Description | (0032,1060) | 2 | Taken from worklist if it is there |
| >Requested Procedure Code Sequence | (0032,1064) | 2 | Sent as empty. |
| >>Include 'Code Sequence Macro' | | | |
| Performed Procedure Code Sequence | (0040,A372) | 2 | Sent as empty. |
| >*Include 'Code Sequence Macro'* | | | |
| Current Requested Procedure Evidence Sequence | (0040,A375) | 1 | List of all composite SOP Instances of US Single, US MF, Enhanced US Volume or Secondary Capture   referenced in the Content Sequence (0040,A730). |
| >*Include 'Hierarchical SOP Instance Reference Macro'* | | | |
| Author Observer Sequence | (0040, A078) | 3 | Filled with observer information. |

### 8.4.2.2  SR Document Content Module

**TABLE 8-5**
**SR DOCUMENT CONTENT MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Use |
|---|---|---|---|
| Observation DateTime | (0040,A032) | 1C | Not used |

| Content Template Sequence | (0040,A504) | 1C | Depending on application, see template |
| | | | |

| Application | Template ID |
|---|---|
| Small Parts | GEMS_US_0100 Ultrasound M&A document title (99GEMS) |
| Pediatrics | GEMS_US_0100 Ultrasound M&A document title (99GEMS) |
| Urology | GEMS_US_0100 Ultrasound M&A document title (99GEMS) |
| Vascular | 5100 Vascular US Proc Rep (DCMR) |
| Abdomen | 5100 Vascular US Proc Rep (DCMR) |
| OB | 5000 OB-GYN US Proc Rep (DCMR) |
| GYN | 5000 OB-GYN US Proc Rep (DCMR) |
| Cardiac | 5200 Echocardiography Proc Rep (DCMR) |
| Thyroid | GEMS_US_SP_0100 Soft Tissue Neck and Head Imaging Report (99GEMS) |
| Breast | 4200 Breast Imaging Report (DCMR) |

For flagging images rejected with quality reasons: Template ID: 2010 - Key Object Selection (DCMR)

| | | | |
|---|---|---|---|
| >Mapping Resource | (0008,0105) | 1 | |
| >Template Identifier | (0040,DB00) | 1 | |
| Value Type | (0040,A040) | 1 | CONTAINER |
| Continuity of Content | (0040,A050) | 1C | SEPARATE |
| Concept Name Code Sequence | (0040,A043) | 1C | Depending on application, see template<br><br>'Ultrasound M&A document title' (GEMS_US_0100)<br><br>'OB-GYN Ultrasound Procedure Report'<br><br>'Vascular Ultrasound Procedure Report' or<br><br>'Echocardiography Procedure Report'<br><br>'Breast Imaging Report'<br><br>'Soft Tissue Neck and Head Imaging Report'<br><br>For flagging images which are rejected or deleted during direct store (in progress sending): (113001, DCM, 'Rejected for Quality Reasons') |

| | | | |
|---|---|---|---|
| *>Include 'Code Sequence Macro'* | | | |
| *Insert Concept Value attribute(s)* | | | |
| Content Sequence | (0040,A730) | 1C | Depending on application, see template 'Ultrasound M&A document title' 'OB-GYN Ultrasound Procedure Report' 'Vascular Ultrasound Procedure Report' or 'Echocardiography Procedure Report' 'Breast Imaging Report' 'Soft Tissue Neck and Head Imaging Report'<br><br>For flagging images see 'Key Object Selection' |
| > Relationship Type | (0040,A010) | 1 | Depending on application, see template 'Ultrasound M&A document title', 'OB-GYN Ultrasound Procedure Report', 'Vascular Ultrasound Procedure Report' or 'Echocardiography Procedure Report. 'Breast Imaging Report' 'Soft Tissue Neck and Head Imaging Report'<br><br>For flagging images see 'Key Object Selection' |
| > Referenced Content Item Identifier | (0040,DB73) | 1C | Not used |
| > *Insert SR DocumentContent Module* | | | Depending on application, see template 'Ultrasound M&A document title', 'OB-GYN Ultrasound Procedure Report', 'Vascular Ultrasound Procedure Report' or 'Echocardiography Procedure Report'. 'Breast Imaging Report' 'Soft Tissue Neck and Head Imaging Report'<br><br>For flagging images see 'Key Object Selection' |

#### 8.4.2.2.1 SR Document Content Descriptions

##### 8.4.2.2.1.1 Content Template

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

**TABLE 8-6**
**SR ROOT TEMPLATES**

| SOP Class | Template ID | Template Name | Use |
|---|---|---|---|

| Comprehensive SR | GEMS_US_0100 | Ultrasound M&A document title | Create |
|---|---|---|---|
| Comprehensive SR | 5000 | OB-GYN Ultrasound Procedure Report | Create |
| Comprehensive SR | 5100 | Vascular Ultrasound Procedure Report | Create |
| Comprehensive SR | 5200 | Echocardiography Procedure Report | Create |
| Comprehensive SR | 4200 | Breast Imaging Report | Create |
| Comprehensive SR | GEMS_US_SP_0100 | Soft Tissue Neck and Head Imaging Report' | Create |
| Key Object Selection Document | 2010 | Key Object Selection Document | Create |

Refer to section 8.7 for a detailed description of the supported templates.

## 8.5 STANDARD EXTENDED AND PRIVATE DATA ATTRIBUTES

The product will send measurements raw data information in private data elements designated by the Private Creator element:

| Element Name | Tag | VR | VM | Description |
|---|---|---|---|---|
| Private Creator | 6005,00xx | LO | 1 | GE_GROUP |

This means that all private tags starting with 6005,xx will belong to the GE_GROUP.

## 8.6 STANDARD EXTENDED AND PRIVATE CONTEXT GROUPS

The Product supports coded terminology using Standard Extended, Private, and Configurable Context Groups defined in the following sections.

DICOM SR Templates

Vascular Ultrasound Procedure Report

Echocardiography Procedure Report

OB-GYN Ultrasound Procedure Report

Breast Imaging Report

Soft tissue neck and head Imaging Report

GE Ultrasound M&A Report

## 8.7 STANDARD, STANDARD EXTENDED AND PRIVATE TEMPLATES

The Product supports the Standard Extended and Private Templates defined in the following sections.

### 8.7.1 Standard Templates

The Product supports the following standard templates for SOP Instances created by this product.

| Application | Template ID |
|---|---|
| Vascular | 5100 Vascular US Proc Rep (DCMR) |
| Abdomen | 5100 Vascular US Proc Rep (DCMR) |
| OB | 5000 OB-GYN US Proc Rep (DCMR) |
| GYN | 5000 OB-GYN US Proc Rep (DCMR) |
| Cardiac | 5200 Echocardiography Proc Rep (DCMR) |
| Breast | 4200 Breast Imaging Report (DCMR) |

### 8.7.2 Standard Extended Templates

Not applicable

**8.7.3 Private Templates**

The Product supports the following private templates for SOP Instances created by this product.

| Application | Template ID |
|---|---|
| Small Parts | GEMS_US_0100 Ultrasound M&A document title (99GEMS) |
| Pediatrics | GEMS_US_0100 Ultrasound M&A document title (99GEMS) |
| Urology | GEMS_US_0100 Ultrasound M&A document title    (99GEMS) |
| Thyroid | GEMS_US_SP_0100 Soft Tissue Neck and Head Imaging Report (99GEMS) |

# 9. KEY OBJECT SELECTION DOCUMENT INFORMATION OBJECT IMPLEMENTATION

## 9.1 INTRODUCTION

This section specifies the use of the DICOM key Object Selection Document IOD to represent results produced by this implementation. Corresponding attributes are conveyed using the module construct. Use of Key Object Selection is limited to identification of images rejected for quality reasons.

Note: This use is in accordance with Image Object Change Management Profile specified by IHE Radiology."

## 9.2 LOGIQ P8/P9/P10 SCANNER MAPPING OF DICOM ENTITIES

The LOGIQ P8/P9/P10 Scanner maps DICOM Information Entities to local Information Entities in the product's database and user interface.

**TABLE 9-1**
**MAPPING OF DICOM ENTITIES TO LOGIQ P8/P9/P10 SCANNER ENTITIES**

| DICOM IE | LOGIQ P8/P9/P10 Scanner Entity |
|----------|--------------------------------|
| Patient | Patient |
| Study | Exam |
| Series | Series |
| Document | Document |

## 9.3 IOD MODULE TABLE

The Key Object Selection Document Information Object Definitions comprise the modules of the following tables. The elements not listed are not used by the application.

Standard, Standard Extended and Private templates are further described in Section 9.5.

**TABLE 9-2**
**KEY OBJECT SELECTION DOCUMENT IOD MODULES**

| Entity Name | Module Name | Usage | Reference |
|-------------|-------------|-------|-----------|
| Patient | Patient | Used | 4.4.1.1 |
|  | Specimen Identification | Not used | N/A |
|  | Clinical Trial Subject | Not used | N/A |
| Study | General Study | Used | 4.4.2.1 |
|  | Patient Study | Used | 4.4.2.2 |
|  | Clinical Trial Study | Not used | N/A |
| Series | Key Object Document Series | Used | 9.4.1.1 |
|  | Clinical Trial Series | Not used | N/A |
| Equipment | General Equipment | Used | 4.4.3.1 |

| Document | Key Object Document | Used | 9.4.2.1 |
|---|---|---|---|
| | SR Document Content | Used | 8.4.2.2 |
| | SOP Common | Used | 4.4.5.8 |

## 9.4 INFORMATION MODULE DEFINITIONS

Please refer to DICOM Part 3 (Information Object Definitions) for a description of each of the entities, modules, and attributes contained within the SR Information Objects.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included for completeness and to define what values they may take and where these values are obtained from when generating the instance. It should be noted that they are the same ones as defined in the DICOM Standard Part 3 (Information Object Definitions). Also note that Attributes not present in tables are not supported.

### 9.4.1 Series Entity Modules

#### 9.4.1.1 Key Object Document Series Module

**TABLE 9-3**
**KEY OBJECT DOCUMENT SERIES MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Use |
|---|---|---|---|
| Modality | (0008,0060) | 1 | Value = KO |
| Series Instance UID | (0020,000E) | 1 | Uniquely generated by the equipment |
| Series Number | (0020,0011) | 1 | Internal number which is incremented for each new exam within a study. |
| Series Date | (0008,0021) | 3 | Set as date of exam (series) created |
| Series Time | (0008,0031) | 3 | Set as time of exam (series) created |
| Referenced Performed Procedure Step Sequence | (0008,1111) | 2 | Sent as empty. |
| > *'Referenced SOP Class / Instance UIDs'* | | | |

### 9.4.2 Document Entity Modules

#### 9.4.2.1 Key Object Document Module

**TABLE 9-4**
**KEY OBJECT DOCUMENT MODULE ATTRIBUTES**

| Attribute Name | Tag | Type | Use |
|---|---|---|---|
| Instance Number | (0020,0013) | 1 | Internal number which is incremented for each new Key Object Selection document within a study. |
| Content Date | (0008,0023) | 1 | Date of creation, based upon user action that invoked the use of the object |
| Content Time | (0008,0033) | 1 | Time of creation, based upon user action that invoked the use of the object. |
| 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 Study Instance UID in General Study Module |
|---|---|---|---|
| >Referenced Study Sequence | (0008,1110) | 2 | Sent as empty |
| >>Include 'SOP Instance Reference Macro' | | | |
| >Accession Number | (0008,0050) | 2 | Taken from Accession Number in General Study Module |
| >Placer Order Number/Imaging Service Request | (0040,2016) | 2 | Sent as empty |
| >Filler Order Number/Imaging Service Request | (0040,2017) | 2 | Sent as empty |
| >Requested Procedure ID | (0040,1001) | 2 | Taken from worklist if it is there |
| >Requested Procedure Description | (0032,1060) | 2 | Taken from worklist if it is there |
| >Requested Procedure Code Sequence | (0032,1064) | 2 | Sent as empty. |
| >>Include 'Code Sequence Macro' | | | |
| Current Requested Procedure Evidence Sequence | (0040,A375) | 1 | List of all composite SOP Instances of US Single, US MF, Enhanced US Volume or Secondary Capture   referenced in the Content Sequence (0040,A730). |
| >Include 'Hierarchical SOP Instance Reference Macro' | | | |
| Author Observer Sequence | (0040, A078) | 3 | Filled with observer information. |

## 9.5  STANDARD, STANDARD EXTENDED AND PRIVATE TEMPLATES

The Product supports the Standard Extended and Private Templates defined in the following sections.

### 9.5.1  Standard Templates

The Product supports the following standard templates for SOP Instances created by this product.

#### 9.5.1.1  Template ID 2010 Key Object Selection

Please refer following section.

> Key Object Selection Document Template

### 9.5.2  Standard Extended Templates

Not applicable

### 9.5.3  Private Templates

Not applicable.

# 10. MODALITY WORKLIST INFORMATION MODEL DEFINITION

## 10.1 INTRODUCTION

This section specifies the use of the DICOM Modality Worklist Information Model used to organize data and against which a Modality Worklist Query will be performed. The contents of this section are:

> 10.2- Information Model Description
>
> 10.3- Information Model Entity-Relationship Model
>
> 10.4- Information Model Module Table
>
> 10.5- Information Model Keys

## 10.2 MODALITY WORKLIST INFORMATION MODEL DESCRIPTION

This section defines the implementation of Modality Worklist Information Model.

## 10.3 MODALITY WORKLIST INFORMATION MODEL ENTITY-RELATIONSHIP MODEL

The Entity-Relationship diagram for the Modality Worklist Information Model schema is shown in Illustration 10.3-1. It represents the information that composes a Worklist Item. In this figure, the following diagrammatic convention is established to represent the information organization:

- Each entity is represented by a rectangular box.
- Each relationship is represented by a diamond shaped box.
- The fact that a relationship exists between two entities is depicted by lines connecting the corresponding entity boxes to the relationship boxes.

**ILLUSTRATION 10.3-1**
**MODALITY WORKLIST INFORMATION MODEL E/R DIAGRAM**
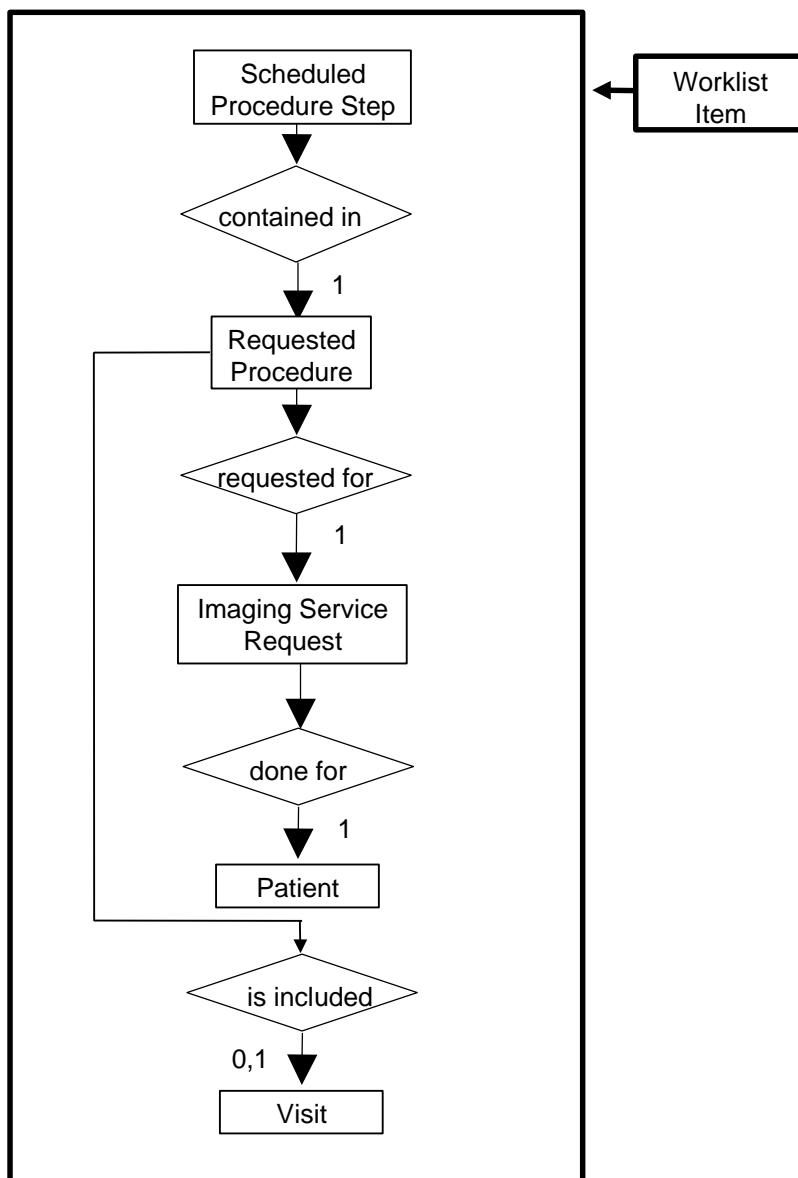


### 10.3.1  Entity Descriptions

Please refer to DICOM Standard PS 3.3. (Information Object Definitions) and PS 3.4 (Service Class Specifications) for a description of each of the Entities contained within the Modality Worklist Information Model.

#### 10.3.1.1  Scheduled Procedure Step

Schedule Procedure Step is implemented in a basic form to allow for the user to retrieve a subset of attributes.

#### 10.3.1.2  Requested Procedure Entity Description

Requested Procedure Step is implemented in a basic form to allow for the user to retrieve a subset of attributes.

**10.3.1.3  Imaging Service Request Entity Description**

Image Service is implemented in a basic form to allow for the user to retrieve a subset of attributes.

**10.3.1.4  Visit Entity Description**

Visit Entity is implemented in a basic form to allow for the user to retrieve a subset of attributes.

**10.3.1.5  Patient Entity Description**

Patient Entity Description is implemented in a basic form to allow for the user to retrieve a subset of attributes.

**10.3.2  LOGIQ P8/P9/P10 Scanner Mapping of DICOM entities**

TABLE 10-1 MAPPING OF DICOM ENTITIES TO LOGIQ P8/P9/P10 SCANNER ENTITIES

| DICOM | LOGIQ P8/P9/P10 Scanner Entity |
|---|---|
| Scheduled Procedure Step | Worklist entry |
| Requested Procedure | Exam |
| Imaging Service Request | Exam |
| Visit | Not Applicable |
| Patient | Patient |

**10.4  INFORMATION MODEL MODULE TABLE**

Within an entity of the DICOM Modality Worklist Information Model, attributes are grouped into related set of attributes. A set of related attributes is termed a module. A module facilitates the understanding of the semantics concerning the attributes and how the attributes are related with each other. A module grouping does not infer any encoding of information into datasets.

Table 10-2 identifies the defined modules within the entities that comprise the DICOM Modality Worklist Information Model. Modules are identified by Module Name.

See DICOM PS 3.3 and PS 3.4 for a complete definition of the entities, modules, and attributes.

TABLE 10-2 MODALITY WORKLIST INFORMATION MODEL MODULES

| Entity Name | Module Name | Reference |
|---|---|---|
| Scheduled Procedure Step | SOP Common | 10.5.2.1 |
| | Scheduled Procedure Step | 10.5.2.2 |
| Requested Procedure | Requested Procedure | 10.5.3.1 |
| Imaging Service Request | Imaging Service Request | 10.5.4.1 |
| Visit | Visit Identification | 10.5.5.1 |
| | Visit Status | 10.5.5.2 |
| | Visit Relationship | 10.5.5.3 |
| | Visit Admission | Not Used |
| Patient | Patient Relationship | Not Used |
| | Patient Identification | 10.5.6.1 |
| | Patient Demographic | 10.5.6.2 |
| | Patient Medical | 10.5.6.3 |

## 10.5   INFORMATION MODEL KEYS

Please refer to DICOM Standard PS 3.3. (Information Object Definitions) and PS 3.4 (Service Class Specifications) for a description of each of the Entities contained within the Modality Worklist Information Model.

The following Module descriptions are included to specify what data elements are supported and what type of matching can be applied. It should be noted that they are the same ones as defined in the DICOM Standard PS 3.4 (Service Class Specifications).

The term Instance is used for Images and Results in examinations that are based on Worklist entries. Please note that tags that are not defined for SR documents will not be mapped (see Section: 8).

### 10.5.1   Supported Matching

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

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

Fields with "Filtering is supported" in the Matching column can be controlled from the Search screen. This means that the user can filter the downloaded C-FIND result, to view a limited set of the result.

All non-required matching fields can be configured in Config screen to be either enabled, enabled with a constant value or disabled. The constant value will be used as entered by user.
Wild Card Matching is only used for Patient's Name (0010,0010).

**10.5.2 Scheduled Procedure Step Entity**

**10.5.2.1 SOP Common Module**

TABLE 10-3 □SOP COMMON MODULE ATTRIBUTES

| Attribute Name | Tag | Expected Matching Key Type | Expected Returned Key Type | Mapped into Instance/MP PS | Matching |
|---|---|---|---|---|---|
| Specific Character Set | (0008,0005) | O | 1C | Yes/Yes | Attribute is supported if the query contains matching keys in other than the default character repertoire. ISO-IR 100 is supported in responses. |

**10.5.2.2 Scheduled Procedure Step Module**

TABLE 10-4 SCHEDULED PROCEDURE STEP MODULE ATTRIBUTES

| Attribute Name | Tag | Expected Matching Key Type | Expected Returned Key Type | Mapped into Instance/MP PS | Matching |
|---|---|---|---|---|---|
| Scheduled Procedure Step Sequence | (0040,0100) | R | 1 | Yes/Yes | Matching is supported. |
| >Scheduled Station AE Title | (0040,0001) | R | 1 | No/No | Matching is supported. Filtering is supported. |
| >Scheduled Procedure Step Start Date | (0040,0002) | R | 1 | No/No | Matching is supported. Filtering is supported. |
| >Scheduled Procedure Step Start Time | (0040,0003) | R | 1 | No/No | Matching is supported. Filtering is supported. |
| >Modality | (0008,0060) | R | 1 | Yes/Yes (but always "US") | Matching is supported. Filtering is supported. |
| >Scheduled Performing Physician's Name | (0040,0006) | R | 2 | Yes/Yes (to Performing Physician's Name) | Matching is supported. Filtering is supported. |
| >Scheduled Procedure Step Description | (0040,0007) | O | 1C | Yes/Yes (to Series Description) | Matching is supported. Filtering is supported. |
| >Scheduled Station Name | (0040,0010) | O | 2 | No/No | Matching is supported. Filtering is supported. |

| | | | | | |
|---|---|---|---|---|---|
| >Scheduled Procedure Step Location | (0040,0011) | O | 2 | No/No | Matching is supported. |
| >Scheduled Procedure Step ID | (0040,0009) | O | 1 | Yes/Yes | Matching is supported. Filtering is supported. |
| >Scheduled Protocol Code Sequence | (0040,0008) | O | 1C | Yes/Yes | Matching is supported. Filtering is supported. |

### 10.5.3 Requested Procedure Entity

#### 10.5.3.1 Requested Procedure Module

**TABLE 10-5 REQUESTED PROCEDURE MODULE ATTRIBUTES**

| Attribute Name | Tag | Expected Matching Key Type | Expected Returned Key Type | Mapped into Instance/MPPS | Matching |
|---|---|---|---|---|---|
| Requested Procedure ID | (0040,1001) | O | 1 | Yes/Yes (to Requested Procedure ID and Study ID) | Matching is supported. Filtering is supported. |
| Requested Procedure Description | (0032,1060) | O | 1C | Yes/Yes (to Study Description) | Matching is supported. Filtering is supported. |
| Requested Procedure Code Sequence | (0032,1064) | O | 1C | Yes/Yes (to Procedure Code Sequence) | Matching is supported. Filtering is supported. |
| Requested Procedure Comments | (0040,1400) | O | 3 | No/No | Matching is supported. Filtering is supported. |
| Study Instance UID | (0020,000D) | O | 1 | Yes/Yes | Matching is supported. Filtering is supported. |
| Referenced Study Sequence | (0008,1110) | O | 2 | Yes/Yes | Matching is supported. Filtering is supported. |
| >Referenced SOP Class UID | (0008,1150) | O | 1C | Yes/Yes | Matching is supported. |
| >Referenced SOP Instance UID | (0008,1155) | O | 1C | Yes/Yes | Matching is supported. |
| Names of Intended Recipients of Results | (0040,1010) | O | 3 | No/No (to Physician(s) of Record) | Matching is supported. Filtering is supported. |

**10.5.4 Imaging Service Request Entity**

**10.5.4.1 Imaging Service Request Module**

TABLE 10-6 □IMAGING SERVICE REQUEST MODULE ATTRIBUTES

| Attribute Name | Tag | Expected Matching Key Type | Expected Returned Key Type | Mapped into Instance/MPPS | Matching |
|---|---|---|---|---|---|
| Accession Number | (0008,0050) | O | 2 | Yes/Yes | Matching is supported. Filtering is supported. |
| Referring Physician's Name | (0008,0090) | O | 2 | Yes/No | Matching is supported. Filtering is supported. |
| Imaging Service Request Comments | (0040,2400) | O | 3 | No/No | Matching is supported. Filtering is supported. |
| Requesting Physician | (0032,1032) | O | 2 | No/No | Matching is supported. Filtering is supported. |
| Requesting Service | (0032,1033) | O | 3 | No/No | Matching is supported. Filtering is supported. |

**10.5.5 Visit Entity**

**10.5.5.1 Visit Identification**

TABLE 10-7 VISIT IDENTIFICATION MODULE ATTRIBUTES

| Attribute Name | Tag | Expected Matching Key Type | Expected Returned Key Type | Mapped into Instance/MPPS | Matching |
|---|---|---|---|---|---|
| Admission ID | (0038,0010) | O | 2 | No/Yes | Matching is supported. Filtering is supported. |

**10.5.5.2 Visit Status**

TABLE 10-8 VISIT STATUS MODULE ATTRIBUTES

| Attribute Name | Tag | Expected Matching Key Type | Expected Returned Key Type | Mapped into Instance/MPPS | Matching |
|---|---|---|---|---|---|
| Current Patient Location | (0038,0300) | O | 2 | No/No | Matching is supported. Filtering is supported. |

**10.5.5.3 Visit Relationship**

TABLE 10-9 VISIT RELATIONSHIP MODULE ATTRIBUTES

| Attribute Name | Tag | Expected Matching Key Type | Expected Returned Key Type | Mapped into Instance/MPPS | Matching |
|---|---|---|---|---|---|

| Referenced Patient Sequence | (0008,1120) | O | 2 | Yes/Yes | Matching is supported. |
|---|---|---|---|---|---|
| >Referenced SOP Class UID | (0008,1150) | O | 2 | Yes/Yes | Matching is supported. |
| >Referenced SOP Instance UID | (0008,1155) | O | 2 | Yes/Yes | Matching is supported. |

### 10.5.6  Patient Entity

#### 10.5.6.1  Patient Identification

**TABLE 10-10 PATIENT IDENTIFICATION MODULE ATTRIBUTES**

| Attribute Name | Tag | Expected Matching Key Type | Expected Returned Key Type | Mapped into Instance/MPPS | Matching |
|---|---|---|---|---|---|
| Patient's Name | (0010,0010) | R | 1 | Yes/Yes | Matching is supported. Filtering is supported. |
| | | | | | Matching is supported as follows: either no Patient's Name is supplied (universal matching), the patient's last (family) name or first name specified on the worklist screen is supplied, for matching; this is user selectable. Wild card matching is implemented for leading and trailing characters. |
| | | | | | Patient Name is displayed on the "Worklist Schedule" screen. |
| | | | | | Application does support matching for Patient Last name and First name component groups. The caret characters ('^') will be automatically inserted between the supported component groups. |
| Patient ID | (0010,0020) | R | 1 | Yes/Yes | Matching is supported. Filtering is supported. |
| Issuer Of Patient ID | (0010,0021) | O | 3 | Yes/Yes | Matching is supported. Filtering is supported. |
| Other Patient Ids | (0010,1000) | O | 3 | Yes/Yes | Matching is supported. Filtering is supported. |
| Other Patient IDs Sequence | (0010,1002) | O | 3 | No/No | Not used. |

#### 10.5.6.2  Patient Demographic

**TABLE 10-11 PATIENT DEMOGRAPHIC MODULE ATTRIBUTES**

| Attribute Name | Tag | Expected Matching Key Type | Expected Returned Key Type | Mapped into Instance/MPPS | Matching |
|---|---|---|---|---|---|
| Patients Birth Date | (0010,0030) | O | 2 | Yes/Yes | Matching is supported. Filtering is supported. |
| Patients Birth Time | (0010,0032) | O | 3 | Yes/No | Matching is supported. Filtering is supported. |
| Patient's Sex | (0010,0040) | O | 2 | Yes/Yes | Matching is supported. Filtering is supported. |
| Patient's Size | (0010,1020) | O | 3 | Yes/No | Matching is supported. Filtering is supported. |
| Patient's Weight | (0010,1030) | O | 2 | Yes/No | Matching is supported. Filtering is supported. |
| Patient's Address | (0010,1040) | O | 3 | No/No | Matching is supported. |
| Ethnic Group | (0010,2160) | O | 3 | Yes/No | Matching is supported. Filtering is supported. |
| Patient Comments | (0010,4000) | O | 3 | Yes/No | Matching is supported. Filtering is supported. |

### 10.5.6.3  Patient Medical

**TABLE 10-12 PATIENT MEDICAL MODULE ATTRIBUTES**

| Attribute Name | Tag | Expected Matching Key Type | Expected Returned Key Type | Mapped into Instance/MPPS | Matching |
|---|---|---|---|---|---|
| Additional Patient History | (0010,21B0) | O | 3 | Yes/No | Matching is supported. Filtering is supported. |
| Contrast Allergies | (0010,2110) | O | 2 | No/No | Matching is supported. Filtering is supported. |
| Medical Alerts | (0010,2000) | O | 2 | No/No | Matching is supported. Filtering is supported. |
| Pregnancy Status | (0010,21C0) | O | 2 | No/No | Matching is supported. Filtering is supported. |

# 11. MODALITY PERFORMED PROCEDURE STEP IMPLEMENTATION

## 11.1 INTRODUCTION

This section specifies the use of the DICOM Modality Performed Procedure Step information to be communicated to the Hospital/Radiology information system.

This feature works in conjunction with DICOM Modality Worklist feature, if installed. However the conformance of this feature is independent of Modality Worklist feature. For information on conformance of Modality Worklist feature to DICOM standard please refer to the appropriate section in this document.

### 11.1.1 RELATIONSHIP BETWEEN SCHEDULED AND PERFORMED PROCEDURE STEPS

The scanner supports a one-to-one relationship between Scheduled Procedure Step and PPS and a zero-to-one relationship (aka Unscheduled Case or Acquisition without MWL Data).

## 11.2 MODALITY PERFORMED PROCEDURE STEP MODULE TABLE

See DICOM PS 3.3 and PS 3.4 for a complete definition of the entities, modules, and attributes.

### TABLE 11-1 MODALITY PERFORMED PROCEDURE STEP MODULES

| Module Name | Reference |
|---|---|
| SOP Common | 11.4 |
| Performed Procedure Step Relationship | 11.5 |
| Performed Procedure Step Information | 11.6 |
| Image Acquisition Results | 11.7 |
| Radiation Dose | Not Used |
| Billing and Material Management Codes | Not Used |

## 11.3 MODALITY PERFORMED PROCEDURE STEP MODULE DEFINITIONS

Please refer to DICOM Standard PS 3.3. (Information Object Definitions) for a description of each of the attributes contained within the Modality Performed Procedure Step Information Object Definition.

## 11.4 SOP COMMON MODULE

### TABLE 11-2 SOP COMMON MODULE ATTRIBUTES

| Attribute Name | Tag | Type for SCU N-CREATE | Type for SCU N-SET | Use |
|---|---|---|---|---|
| Specific Character Set | (0008,0005) | 1C | 1C | Not used. |

**11.5 PERFORMED PROCEDURE STEP RELATIONSHIP MODULE**

<p style="text-align:center">**TABLE 11-3 PERFORMED PROCEDURE STEP RELATIONSHIP MODULE ATTRIBUTES**</p>

| Attribute Name | Tag | Type for SCU - N-CREATE | |
| --- | --- | --- | --- |
| | | **Acquisition with MWL Entry** | **Acquisition without MWL Entry** |
| Scheduled Step Attributes Sequence | (0040,0270) | 1, One item sent | 1, One item sent |
| >Study Instance UID | (0020,000D) | 1, Copied from SPS | 1, Created by scanner |
| >Referenced Study Sequence | (0008,1110) | 2, Copied from SPS. Single item sent. | 2, Empty |
| >>Referenced SOP Class UID | (0008,1150) | 1, Copied from SPS. | 1, Not sent |
| >>Referenced SOP Instance UID | (0008,1155) | 1, Copied from SPS. | 1, Not sent |
| >Accession Number | (0008,0050) | 2, Copied from SPS. | 2, Empty |
| >Placer Order Number/Imaging Service Request | (0040,2016) | 3, Not sent. | 3, Not sent. |
| >Filler Order Number/Imaging Service Request | (0040,2017) | 3, Not sent. | 3, Not sent. |
| >Requested Procedure ID | (0040,1001) | 2, Copied from SPS. | 2, Empty |
| >Requested Procedure Code Sequence | (0032,1064) | 3, Not sent. | 3, Not sent. |
| >>Code Value | (0008,0100) | 1, Not sent. | 1, Not sent. |
| >>Coding Scheme Designator | (0008,0102) | 1, Not sent. | 1, Not sent. |
| >>Code Meaning | (0008,0104) | 1, Not sent. | 1, Not sent. |
| >Requested Procedure Description | (0032,1060) | 2, Empty | 2, Empty |
| >Scheduled Procedure Step ID | (0040,0009) | 2, Copied from SPS. | 2, Sent empty. |
| >Scheduled Procedure Step Description | (0040,0007) | 2, Copied from SPS. | 2, Sent Empty |

| | | | |
|---|---|---|---|
| >Scheduled Protocol Code Sequence | (0040,0008) | 2, Copied from SPS. One item sent. | 2, Sent Empty. |
| >>Code Value | (0008,0100) | 1, Copied from SPS. | 1, Not sent |
| >>Coding Scheme Designator | (0008,0102) | 1, Copied from SPS. | 1, Not sent |
| >>Coding Scheme Version | (0008,0103) | 3, Copied from SPS. | 3, Not sent |
| >>Code Meaning | (0008,0104) | 3, Copied from SPS. | 3, Not sent |
| Patient's Name | (0010,0010) | 2, Copied from worklist. | 2 Created by scanner. |
| Patient ID | (0010,0020) | 2, Copied from worklist. | 2, Created by scanner. |
| Issuer of Patient ID | (0010,0021) | 3, Copied from worklist. | 3, Not sent |
| Patient's Birth Date | (0010,0030) | 2, Copied from worklist. | 2, Created by scanner. |
| Patient's Sex | (0010,0040) | 2, Copied from worklist. | 2, Created by scanner. |
| Referenced Patient Sequence | (0008,1120) | 2, Copied from worklist. | 2, Empty |
| >Referenced SOP Class UID | (0008,1150) | 1, Copied from worklist. | 1, Not sent |
| >Referenced SOP Instance UID | (0008,1155) | 1, Copied from worklist. | 1, Not sent |
| Admission ID | (0038,0010) | 3, Not sent | 3, Not sent |
| Issuer of Admission ID | (0038,0011) | 3, Not sent | 3, Not sent |
| Service Episode ID | (0038,0060) | 3, <Not sent | 3, Not sent |
| Issuer of Service Episode ID | (0038,0061) | 3, Not sent | 3, Not sent |
| Service Episode Description | (0038,0062) | 3, Not sent | 3, Not sent |

## 11.6 PERFORMED PROCEDURE STEP INFORMATION MODULE

### TABLE 11-4 PERFORMED PROCEDURE STEP INFORMATION MODULE ATTRIBUTES

| Attribute Name | Tag | Type for SCU N-CREATE | Type for SCU N-SET | Use |
|---|---|---|---|---|
| Performed Procedure Step ID | (0040,0253) | 1 | - | Supported. |
| Performed Station AE Title | (0040,0241) | 1 | - | Supported. |
| Performed Station Name | (0040,0242) | 2 | - | Supported. |
| Performed Location | (0040,0243) | 2 | - | Supported. |
| Performed Procedure Step Start Date | (0040,0244) | 1 | - | Supported. |
| Performed Procedure Step Start Time | (0040,0245) | 1 | - | Supported. |
| Performed Procedure Step Status | (0040,0252) | 1 | 3 | Supported. |
| Performed Procedure Step Description | (0040,0254) | 2 | 3 | Supported. |
| Performed Procedure Type Description | (0040,0255) | 2 | 3 | Supported. |
| Procedure Code Sequence | (0008,1032) | 2 | 3 | Supported. |
| >Code Value | (0008,0100) | 1 | 1 | Supported. |
| >Coding Scheme Designator | (0008,0102) | 1 | 1 | Supported. |
| >Coding Scheme Version | (0008,0103) | 3 | 3 | Supported. |
| >Code Meaning | (0008,0104) | 3 | 3 | Supported. |
| Performed Procedure Step End Date | (0040,0250) | 2 | 3 | Supported. |
| Performed Procedure Step End Time | (0040,0251) | 2 | 3 | Supported. |
| Comments on the Performed Procedure Step | (0040,0280) | 3 | 3 | Not sent. |
| Performed Procedure Step Discontinuation Reason Code Sequence | (0040,0281) | 3 | 3 | Not sent. |
| >Code Value | (0008,0100) | 1 | 1 | Not sent. |
| >Coding Scheme Designator | (0008,0102) | 1 | 1 | Not sent. |
| >Coding Scheme Version | (0008,0103) | 3 | 3 | Not sent. |
| >Code Meaning | (0008,0104) | 3 | 3 | Not sent. |

## 11.7 IMAGE ACQUISITION RESULTS MODULE

### TABLE 11-5 IMAGE ACQUISITION RESULTS MODULE ATTRIBUTES

| Attribute Name | Tag | Type for SCU N-CREATE | Type for SCU N-SET | Use |
|---|---|---|---|---|
| Modality | (0008,0060) | 1 | - | Supported. |
| Study ID | (0020,0010) | 2 | - | Supported. |
| Performed Protocol Code Sequence | (0040,0260) | 2 | 3 | Supported. |
| >Code Value | (0008,0100) | 1 | 1 | Supported. |

| | | | | |
|---|---|---|---|---|
| >Coding Scheme Designator | (0008,0102) | 1 | 1 | Supported. |
| >Coding Scheme Version | (0008,0103) | 3 | 3 | Supported. |
| >Code Meaning | (0008,0104) | 3 | 3 | Supported. |
| Performed Series Sequence | (0040,0340) | 2 | 3 | Supported. |
| >Performing Physician's Name | (0008,1050) | 2 | 2 | Sent empty. |
| >Protocol Name | (0018,1030) | 1 | 1 | Supported. |
| >Operator's Name | (0008,1070) | 2 | 2 | Supported. |
| >Series Instance UID | (0020,000E) | 1 | 1 | Supported. |
| >Series Description | (0008,103E) | 2 | 2 | Sent empty. |
| >Retrieve AE Title | (0008,0054) | 2 | 2 | Sent empty. |
| > Archive Requested | (0040,A494) | 3 | 3 | Not sent. |
| >Referenced Image Sequence | (0008,1140) | 2 | 2 | Supported. |
| >>Referenced SOP Class UID | (0008,1150) | 1 | 1 | Supported. |
| >>Referenced SOP Instance UID | (0008,1155) | 1 | 1 | Supported. |
| >Referenced Non-Image Composite SOP Instance Sequence | (0040,0220) | 2 | 2 | Sent empty. |
| >>Referenced SOP Class UID | (0008,1150) | 1 | 1 | Not sent. |
| >>Referenced SOP Instance UID | (0008,1155) | 1 | 1 | Not sent. |

# 12. STORAGE COMMITMENT PUSH MODEL IMPLEMENTATION

## 12.1 INTRODUCTION

This section of the DICOM Conformance Statement specifies the Storage Commitment Push Model SOP Class, the optional attributes and service elements supported, the valid range of values for mandatory and optional attributes, and the status code behavior.

## 12.2 STORAGE COMMITMENT PUSH MODEL SOP CLASS DEFINITION

### 12.2.1 IOD Description

#### 12.2.1.1 STORAGE COMMITMENT MODULE

**TABLE 12-1 STORAGE COMMITMENT MODULE**

| Attribute Name | Tag | Attribute Description |
|---|---|---|
| Transaction UID | (0008,1195) | Uniquely generated by the equipment |
| Retrieve AE Title | (0008,0054) | Not used |
| Storage Media File-Set ID | (0088,0130) | Not used |
| Storage Media File-Set UID | (0088,0140) | Not used |
| Referenced SOP Sequence | (0008,1199) | Supported |
| >Referenced SOP Class UID | (0008,1150) | Supported |
| >Referenced SOP Instance UID | (0008,1155) | Supported |
| >Retrieve AE Title | (0008,0054) | Not used |
| >Storage Media File-Set ID | (0088,0130) | Not used |
| >Storage Media File-Set UID | (0088,0140) | Not used |
| Failed SOP Sequence | (0008,1198) | Supported |
| >Referenced SOP Class UID | (0008,1150) | Supported |
| >Referenced SOP Instance UID | (0008,1155) | Supported |
| >Failure Reason | (0008,1197) | Supported |

### 12.2.2 DIMSE Service Group

**TABLE 12-2**

| DIMSE Service Element | Usage SCU/SCP |
|---|---|
| N-EVENT-REPORT | M/M |
| N-ACTION | M/M |

### 12.2.3 Operations

#### 12.2.3.1 Action Information

**TABLE 12-3 STORAGE COMMITMENT REQUEST - ACTION INFORMATION**

| Action Type Name | Action Type ID | Attribute | Tag | Requirement Type SCU/SCP |
|---|---|---|---|---|
| Request Storage Commitment | 1 | Transaction UID | (0008,1195) | 1/1 |
| | | Storage Media File-Set ID | (0088,0130) | Not used |
| | | Storage Media File-Set UID | (0088,0140) | Not used |
| | | Referenced SOP Sequence | (0008,1199) | 1/1 |
| | | >Referenced SOP Class UID | (0008,1150) | 1/1 |
| | | >Referenced SOP Instance UID | (0008,1155) | 1/1 |
| | | >Storage Media File-Set ID | (0088,0130) | Not used |
| | | >Storage Media File-Set UID | (0088,0140) | Not used |

#### 12.2.3.2 Service Class User Behavior

LOGIQ P8/P9/P10 Scanner sends the N-ACTION primitive (Storage Commitment Request) after successful exam save to a DICOM Storage SCP.

LOGIQ P8/P9/P10 Scanner may request storage commitment for all generated SOP Class UIDs:

**TABLE 12-4**

| SOP Class Name | SOP Class UID |
|---|---|
| Ultrasound Multi-frame Image Storage | 1.2.840.10008.5.1.4.1.1.3.1 |
| Ultrasound Multi-frame Image Storage (Retired) | 1.2.840.10008.5.1.4.1.1.3 |
| Ultrasound Image Storage | 1.2.840.10008.5.1.4.1.1.6.1 |
| Ultrasound Image Storage (Retired) | 1.2.840.10008.5.1.4.1.1.6 |
| Enhanced US Volume Storage | 1.2.840.10008.5.1.4.1.1.6.2 |
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 |
| Comprehensive Structured Report | 1.2.840.10008.5.1.4.1.1.88.33 |
| Key Object Selection Document | 1.2.840.10008.5.1.4.1.1.88.59 |

The association for the N-ACTION is disconnected after processing the response. Thus, the N-EVENT-REPORT must be sent on a separate association.

The Referenced Study Component Sequence Attribute is not supported.

The Transaction UID is valid for two days. If no answer is received, the request will be removed without warning the user.

The optional Storage Media File-Set ID & UID Attributes in the N-ACTION are not supported.

### 12.2.4 Notifications

LOGIQ P8/P9/P10 Scanner will only listen for an N-EVENT-REPORT from the SCP in a new association on the listen port for Verification and Storage Commitment.

Role Negotiation is supported and expected in the new association requested.

#### 12.2.4.1 Event Information

**TABLE 12-5**
**STORAGE COMMITMENT RESULT - EVENT INFORMATION**

| Event Type Name | Event Type ID | Attribute | Tag | Requirement Type SCU/SCP |
|---|---|---|---|---|
| Storage Commitment Request Successful | 1 | Transaction UID | (0008,1195) | -/1 |
| | | Retrieve AE Title | (0008,0054) | Not used |
| | | Storage Media File-Set ID | (0088,0130) | Not used |
| | | Storage Media File-Set UID | (0088,0140) | Not used |
| | | Referenced SOP Sequence | (0008,1199) | -/1 |
| | | >Referenced SOP Class UID | (0008,1150) | -/1 |
| | | >Referenced SOP Instance UID | (0008,1155) | -/1 |
| | | >Retrieve AE Title | (0008,0054) | Not used |
| | | >Storage Media File-Set ID | (0088,0130) | Not used |
| | | >Storage Media File-Set UID | (0088,0140) | Not used |
| Storage Commitment Request Complete - Failures Exist | 2 | Transaction UID | (0008,1195) | -/1 |
| | | Retrieve AE Title | (0008,0054) | Not used |
| | | Storage Media File-Set ID | (0088,0130) | Not used |
| | | Storage Media File-Set UID | (0088,0140) | Not used |
| | | Referenced SOP Sequence | (0008,1199) | -/1C |
| | | >Referenced SOP Class UID | (0008,1150) | -/1 |
| | | >Referenced SOP Instance UID | (0008,1155) | -/1 |
| | | >Retrieve AE Title | (0008,0054) | Not used |
| | | >Storage Media File-Set ID | (0088,0130) | Not used |
| | | >Storage Media File-Set UID | (0088,0140) | Not used |
| | | Failed SOP Sequence | (0008,1198) | -/1 |
| | | >Referenced SOP Class UID | (0008,1150) | -/1 |
| | | >Referenced SOP Instance UID | (0008,1155) | -/1 |
| | | >Failure Reason | (0008,1197) | Not used. |

**12.2.4.2  Service Class User Behavior**

Upon receipt of N-EVENT-REPORT request with valid Transaction UID, the request will be removed without warning the user, otherwise the job will be left in the holding queue.

If no N-EVENT-REPORT request is received, the job will be removed without warning the user after two days.

# 13.  BASIC DIRECTORY INFORMATION OBJECT IMPLEMENTATION

## 13.1  INTRODUCTION

This section specifies the use of the DICOM Basic Directory IOD to represent the information included in directories produced by this implementation. Corresponding attributes are conveyed using the module construct. The contents of this section are:

13.2 - IOD Implementation

13.3 - IOD Entity-Relationship Model

13.4- IOD Module Table

13.5 - IOD Module Definition

## 13.2  BASIC DIRECTORY IOD IMPLEMENTATION

This section defines the implementation of Basic Directory information object.

## 13.3  BASIC DIRECTORY ENTITY-RELATIONSHIP MODEL

The Entity-Relationship diagram for the Basic Directory interoperability schema is shown in Illustration 13.3-1**.** In this figure, the following diagrammatic convention is established to represent the information organization:

- each entity is represented by a rectangular box

- each relationship is represented by a diamond shaped box

- the fact that a relationship exists between two entities is depicted by lines connecting the corresponding entity boxes to the relationship boxes.

### 13.3.1  LOGIQ P8/P9/P10 Scanner Mapping of DICOM entities

TABLE 13-1 MAPPING OF DICOM ENTITIES TO LOGIQ P8/P9/P10 SCANNER ENTITIES

| DICOM | LOGIQ P8/P9/P10 Scanner |
|---|---|
| Patient | Patient |
| Study | Exam |
| Series | Exam |
| Image or SR Document | Image or Results |

**Illustration 13.3-1**
**BASIC DIRECTORY ENTITY RELATIONSHIP DIAGRAM**
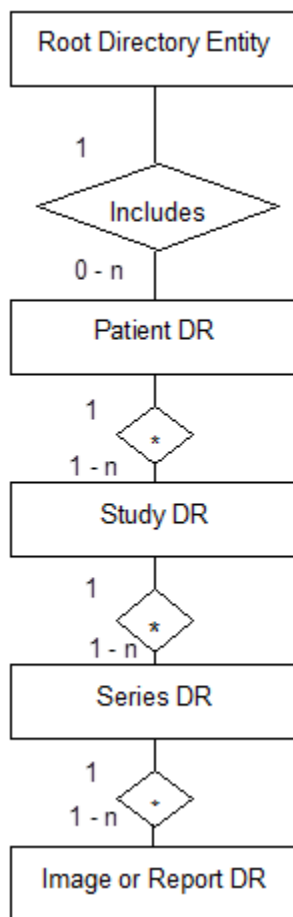
## 13.4 IOD MODULE TABLE

Within an entity of the Basic Directory IOD, attributes are grouped into related set of attributes. A set of related attributes is termed a module. A module facilitates the understanding of the semantics concerning the attributes and how the attributes are related with each other. A module grouping does not infer any encoding of information into datasets.

Table 13-2 identifies the defined modules within the entities, which comprise the Basic Directory IOD. Modules are identified by Module Name.

See DICOM Part 3 for a complete definition of the entities, modules, and attributes.

**TABLE 13-2 BASIC DIRECTORY IOD MODULES**

| Entity Name | Module Name | Reference |
| --- | --- | --- |
| File Set Identification | File Set Identification | 13.5.1.1 |
| Directory Information | Directory Information | 13.5.2.1 |

The Directory Information Module is created when initializing the media. If it already exists, the existing information is not changed regarding patient, study, series or image/result data.

An existing Directory Information Module may have been obtained from application entities using removable media. These instances are external to this conformance claim and the origin of the SOP instances is outside the scope of this claim.

## 13.5  INFORMATION MODULE DEFINITIONS

Please refer to DICOM Standard Part 3 (Information Object Definitions) for a description of each of the entities and modules contained within the Basic Directory Information Object.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported. Type 1 & Type 2 Attributes are also included for completeness and to define what values they may take and where these values are obtained. It should be noted that they are the same ones as defined in the DICOM Standard Part 3 (Information Object Definitions).

### 13.5.1  Common File Set Identification Modules

#### 13.5.1.1  File Set Identification Module

**TABLE 13-3 FILE-SET IDENTIFICATION MODULE**

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| File-set ID | (0004,1130) | 2 | Set to empty value. |
| File-set Descriptor File ID | (0004,1141) | 3 | Not used |
| Specific Character Set of File-set Descriptor File | (0004,1142) | 1C | Not used |

### 13.5.2  Common Directory Information Modules

#### 13.5.2.1  Directory Information Module

**TABLE 13-4 DIRECTORY INFORMATION MODULE**

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| Offset of the First Directory Record of the Root Directory Entity | (0004,1200) | 1 | Is set |
| Offset of the Last Directory Record of the Root Directory Entity | (0004,1202) | 1 | Is set |
| File-set Consistency Flag | (0004,1212) | 1 | FSC/FSU/FSR: Has the value<br><br>0000H: no known inconsistencies, ignored when reading. |
| Directory Record Sequence | (0004,1220) | 2 | Is created by FSC or updated by FSU |
| >Offset of the Next Directory Record | (0004,1400) | 1C | Is set |

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| >Record In-use Flag | (0004,1410) | 1C | FSC/FSU: Is set to FFFFH<br><br>FSR: A value of 0000H: imply skipping this record |
| >Offset of Referenced Lower-Level Directory Entity | (0004,1420) | 1C | Is set |
| >Directory Record Type | (0004,1430) | 1C | The values support by FSC and FSU are<br><br>    PATIENT<br>    STUDY<br>    SERIES<br>    IMAGE<br>    SR DOCUMENT |
| >Private Record UID | (0004,1432) | 1C | Not used |
| >Referenced File ID | (0004,1500) | 1C | Is set if Directory Record Type is IMAGE<br><br>Contains the file path consisting of 5 elements:<br><br>1. "GEMS_IMG" (if IMAGE)<br>2. Month of exam<br>3. Day of exam<br>4. Patient initials and time of exam<br>5. Time stamp |
| >Referenced SOP Class UID in File | (0004,1510) | 1C | Is set to the SOP class UID in File if Directory Record Type is IMAGE |
| >Referenced SOP Instance UID in File | (0004,1511) | 1C | Is set to the SOP instance UID in File if Directory Record Type is IMAGE |
| >Referenced Transfer Syntax UID in File | (0004,1512) | 1C | Is set to the Transfer Syntax UID in File if Directory Record Type is IMAGE |
| >Record Selection Keys | | | See 13.5.3. |

**13.5.3 Definition of Specific Directory Records**

**13.5.3.1 Patient Directory Record Definition**

**TABLE 13-5 PATIENT KEYS**

| Key | Tag | Type | Attribute Description |
|---|---|---|---|
| Specific Character Set | (0008,0005) | 1C | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Patient's Name | (0010,0010) | 2 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Patient ID | (0010,0020) | 1 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. If empty, a Patient Id is created by the equipment. |
| Patient's Birth Date | (0010,0030) | 2 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Patient's Sex | (0010,0040) | 2 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Referenced Patient Sequence | (0008,1120) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| >Referenced SOP Class UID | (0008,1150) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| >Referenced SOP Instance UID | (0008,1155) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Patient's Birth Time | (0010,0032) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Other Patient Ids | (0010,1000) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Other Patient Names | (0010,1001) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Ethnic Group | (0010,2160) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Patient Comments | (0010,4000) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |

**13.5.3.2 Study Directory Record Definition**

**TABLE 13-6 STUDY KEYS**

| Key | Tag | Type | Attribute Description |
|---|---|---|---|
| Specific Character Set | (0008,0005) | 1C | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Study Instance UID | (0020,000D) | 1C | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Study Date | (0008,0020) | 1 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. If empty, a Study Date is created by the equipment. |
| Study Time | (0008,0030) | 1 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. If empty, a Study Time is created by the equipment. |
| Referring Physician's Name | (0008,0090) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Study ID | (0020,0010) | 1 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. If empty, a Study Id is created by the equipment. |
| Accession Number | (0008,0050) | 2 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Study Description | (0008,1030) | 2 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Physician(s) of Record | (0008,1048) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Name of Physician(s) Reading Study | (0008,1060) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Referenced Study Sequence | (0008,1110) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| >Referenced SOP Class UID | (0008,1150) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| >Referenced SOP Instance UID | (0008,1155) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Admitting Diagnoses Description | (0008,1080) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Patient's Age | (0010,1010) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |

| Key | Tag | Type | Attribute Description |
|-----|-----|------|----------------------|
| Patient's Size | (0010,1020) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Patient's Weight | (0010,1030) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Occupation | (0010,2180) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Additional Patient's History | (0010,21B0) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |

### 13.5.3.3  Series Directory Record Definition

**TABLE 13-7 SERIES KEYS**

| Key | Tag | Type | Attribute Description |
|-----|-----|------|----------------------|
| Specific Character Set | (0008,0005) | 1C | Is filled in by FSC or FSU as contained in the image or SR document message, if one of the tags contains extended characters |
| Modality | (0008,0060) | 1 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Series Instance UID | (0020,000E) | 1 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Series Number | (0020,0011) | 1 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. If empty, a Series Number is created by the equipment. |
| Icon Image Sequence | (0088,0200) | 3 | Not used. |
| Series Date | (0008,0021) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| Series Time | (0008,0031) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| Performing Physicians' Name | (0008,1050) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |

| Key | Tag | Type | Attribute Description |
|-----|-----|------|----------------------|
| Protocol Name | (0018,1030) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| Series Description | (0008,103E) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| Operator's Name | (0008,1070) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| Referenced Performed Procedure Step Sequence | (0008,1111) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| >Referenced SOP Class UID | (0008,1150) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| >Referenced SOP Instance UID | (0008,1155) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Request Attributes Sequence | (0040,0275) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| >Requested Procedure ID | (0040,1001) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| >Scheduled Procedure Step ID | (0040,0009) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| >Scheduled Procedure Step Description | (0040,0007) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| >Scheduled Protocol Code Sequence | (0040,0008) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| >>Include 'Code Sequence Macro' | | | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| Performed Procedure Step ID | (0040,0253) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| Performed Procedure Step Start Date | (0040,0244) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |

| Key | Tag | Type | Attribute Description |
|---|---|---|---|
| Performed Procedure Step Start Time | (0040,0245) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| Performed Procedure Step Description | (0040,0254) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| Performed Protocol Code Sequence | (0040,0260) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7 if instance is IMAGE. |
| >Include 'Code Sequence Macro' | | | |
| Manufacturer | (0008,0070) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Institution Name | (0008,0080) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Station Name | (0008,1010) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Institutional Department Name | (0008,1040) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Manufacturer's Model Name | (0008,1090) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Software Versions | (0018,1020) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |

### 13.5.3.4 Image Directory Record Definition

**TABLE 13-8 IMAGE KEYS**

| Key | Tag | Type | Attribute Description |
|---|---|---|---|
| Specific Character Set | (0008,0005) | 1C | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Instance Number | (0020,0013) | 1 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. If empty, a Instance Number is created by the equipment. |
| Icon Image Sequence | (0088,0200) | 3 | Not used |
| Content Date | (0008,0023) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Content Time | (0008,0033) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |

| | | | |
|---|---|---|---|
| Image Type | (0008,0008) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Rows | (0028,0010) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Columns | (0028,0011) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Number Of Frames | (0028,0008) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Photometric Interpretation | (0028,0004) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Contrast/Bolus Agent | (0018,0010) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Lossy Image Compression | (0028,2110) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Lossy Image Compression Ratio | (0028,2112) | 3 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |

### 13.5.3.5  SR Document Directory Record Definition

**TABLE 13-9**
**SR DOCUMENT KEYS**

| Key | Tag | Type | Attribute Description |
|---|---|---|---|
| Specific Character Set | (0008,0005) | 1C | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. |
| Instance Number | (0020,0013) | 1 | Is filled in by FSC and FSU as in chapter 4, 5, 6 and 7. If empty, a Instance Number is created by the equipment. |
| Completion Flag | (0040,A491) | 1 | Set to "PARTIAL". |
| Verification Flag | (0040,A493) | 1 | Set to "UNVERIFIED". |
| Content Date | (0008,0023) | 1 | Set to SR creation date. |
| Content Time | (0008,0033) | 1 | Set to SR creation time. |

### 13.5.3.6  Private Directory Record Definition

Not used.

**13.6 PRIVATE DATA DICTIONARY**

If so configured, the product will send ultrasound raw data information in private data elements designated by the Private Creator element:

**TABLE 13-10**

| Element Name | Tag | VR | VM | Description |
|---|---|---|---|---|
| Private Creator | 7FE1,00xx | LO | 1 | GEMS_Ultrasound_MovieGroup_001 |

This means that all private tags starting with 7FE1,xx will belong to the GEMS_Ultrasound_MovieGroup_001.

If so configured, the product will send preview image in private data elements designated by the Private Creator element:

**TABLE 13-11**

| Element Name | Tag | VR | VM | Description |
|---|---|---|---|---|
| Private Creator | 6003,00xx | LO | 1 | GEMS_Ultrasound_ImageGroup_001 |

This means that all private tags starting with 6003,xx will belong to the GEMS_Ultrasound_ImageGroup_001.

If so configured, the product will send exam information in private data elements designated by the Private Creator element:

**TABLE 13-12**

| Element Name | Tag | VR | VM | Description |
|---|---|---|---|---|
| Private Creator | 6005,00xx | LO | 1 | GEMS_Ultrasound_ExamGroup_001 |

This means that all private tags starting with 6005,xx will belong to the GEMS_Ultrasound_ExamGroup_001.

# 14. PRINT MANAGEMENT IMPLEMENTATION

## 14.1 INTRODUCTION

This section of the DICOM Conformance Statement specifies the supported Print Management SOP and Meta SOP Classes, the optional attributes and service elements supported, the valid range of values for mandatory and optional attributes, and the status code behavior.

> 14.2 - Basic Print Management Meta SOP Classes
>
> 14.3 - Print Management SOP Class Definitions
>
> 14.4 - Print Management IODs
>
> 14.5 - IOD Module Definition

## 14.2 BASIC PRINT MANAGEMENT META SOP CLASSES

The Basic Print Management Meta SOP Classes correspond with the minimum functionality that an implementation of the Print Management Service Class shall support.

LOGIQ P8/P9/P10 Scanner supports the Basic Grayscale Print Management Meta SOP Class and the Basic Color Print Management Meta SOP Class.   These are defined in Table 14-1 and Table 14-2.

### 14.2.1 Basic Grayscale Print Management Meta SOP Class

The Basic Grayscale Print Management Meta SOP Class is defined by the following set of supported SOP Classes.

**TABLE 14-1**
**BASIC GRAYSCALE PRINT MANAGEMENT META SOP CLASS**

| SOP Class Name | Usage SCU | Reference |
|---|---|---|
| Basic Film Session SOP Class | M | see 14.3.1 |
| Basic Film Box SOP Class | M | see 14.3.2 |
| Basic Grayscale Image Box SOP Class | M | see 14.3.3.1 |
| Printer SOP Class | M | see 14.3.4 |
| Basic Annotation Box SOP Class | U | See 14.3.5 |

### 14.2.2 Basic Color Print Management Meta SOP Class

The Basic Color Print Management Meta SOP Class is defined by the following set of supported SOP Classes

**TABLE 14-2**
**BASIC COLOR PRINT MANAGEMENT META SOP CLASS**

| SOP Class Name | Usage SCU | Reference |
|---|---|---|
| Basic Film Session SOP Class | M | see 14.3.1 |
| Basic Film Box SOP Class | M | see   14.3.2 |
| Basic Color Image Box SOP Class | M | see 14.3.3.2 |
| Printer SOP Class | M | see 14.3.4 |
| Basic Annotation Box SOP Class | U | See 14.3.5 |

## 14.3  PRINT MANAGEMENT SOP CLASS DEFINITIONS

### 14.3.1  Basic Film Session SOP Class

The Basic Film Session IOD describes the presentation parameters, which are common for all the films of a film session. The DIMSE services that are applicable to the IOD are shown in below table

**TABLE 14-3**
**DIMSE SERVICE GROUP**

| DIMSE Service Element | Usage SCU | Reference |
|---|---|---|
| N-CREATE | M | see 14.3.1.1.1 |
| N-SET | U | see 14.3.1.1.2 |
| N-DELETE | U | see 14.3.1.1.3 |
| N-ACTION | U | see 14.3.1.1.4 |

#### 14.3.1.1  DIMSE Service Group

##### 14.3.1.1.1  N-CREATE

The N-CREATE DIMSE Service is used by LOGIQ P8/P9/P10 Scanner to request that the SCP (printer) create a Film Session SOP Instance.   Table 14-15 defines the Basic Film Session Presentation Module attributes used in this request.

##### 14.3.1.1.2  N-SET

Not used in this implementation.

##### 14.3.1.1.3  N-DELETE

Not used in this implementation.

##### 14.3.1.1.4  N-ACTION

Not used in this implementation

**14.3.2 Basic Film Box SOP Class**

The Basic Film Box IOD is an abstraction of the presentation of one film of the film session.    The DIMSE services that are applicable to the IOD are shown in below table

**TABLE 14-4**
**DIMSE SERVICE GROUP**

| DIMSE Service Element | Usage SCU | Reference |
|---|---|---|
| N-CREATE | M | see 14.3.2.1.1 |
| N-ACTION | M | see 14.3.2.1.2 |
| N-DELETE | U | see 14.3.2.1.3 |
| N-SET | U | see 14.3.2.1.4 |

**14.3.2.1 DIMSE Service Group**

**14.3.2.1.1 N-CREATE**

The N-CREATE DIMSE Service is used by LOGIQ P8/P9/P10 Scanner to request that the SCP create a Film Box SOP Instance. Table 14-17 defines the Basic Film Box Presentation Module attributes used in this request. The Table 14-18 defines the Basic Film Box Relationship module attributes.

**14.3.2.1.2 N-ACTION**

The N-ACTION DIMSE Service is used by LOGIQ P8/P9/P10 Scanner to request the SCP (printer) to print the number of copies configured by the user to a film of the film session.

**14.3.2.1.3 N-DELETE**

The N-DELETE DIMSE Service is used by LOGIQ P8/P9/P10 Scanner to request the SCP (printer) to delete the complete Film Box.    The root Film Box Instance UID is sent to the SCP to accomplish this.

**14.3.2.1.4 N-SET**

Not used in this implementation.

**14.3.3 Image Box SOP Class**

**14.3.3.1 Basic Grayscale Image Box SOP Class**

The Basic Grayscale Image Box IOD is an abstraction of the presentation of an image and image related data in the image area of a film.    The DIMSE services that are applicable to the IOD are shown in below table.

**TABLE 14-5**
**DIMSE SERVICE GROUP**

| DIMSE Service Element | Usage SCU | Reference |
|---|---|---|
| N-SET | M | see 14.3.3.1.1 |

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**14.3.3.1.1 DIMSE Service Group (N-SET)**

The N-SET DIMSE Service is used by LOGIQ P8/P9/P10 Scanner to update the Basic Grayscale Image Box SOP Instance. Table 14-19 defines the Basic Image Box Pixel Presentation Module attributes used.

**14.3.3.2 Basic Color Image Box SOP Class**

The Basic Color Image Box IOD is an abstraction of the presentation of an image and image related data in the image area of a film. The DIMSE services that are applicable to the IOD are shown in below table

**TABLE 14-6**
**DIMSE SERVICE GROUP**

| DIMSE Service Element | Usage SCU | Reference |
|---|---|---|
| N-SET | M | see 14.3.3.2.1 |

**14.3.3.2.1 DIMSE Service Group (N-SET)**

The N-SET DIMSE Service is used by LOGIQ P8/P9/P10 Scanner to update the Basic Color Image Box SOP Instance. The Table 14-19B defines the Basic Image Box Pixel Presentation Module attributes used.

**14.3.4 Printer SOP Class**

The Printer IOD is an abstraction of the hard copy printer and is the basic Information Entity to monitor the status of the printer. The DIMSE services that are applicable to the IOD are shown in below table

**14.3.4.1 DIMSE Service Group**

**TABLE 14-7**
**DIMSE SERVICE GROUP**

| DIMSE Service Element | Usage SCU | Reference |
|---|---|---|
| N-SET | M | see 14.3.3.2.1 |

**14.3.4.1.1 N-EVENT_REPORT**

LOGIQ P8/P9/P10 Scanner confirms the N-EVENT-REPORT initiated by the SCP (printer).

**14.3.4.1.2 N-GET**

Used by LOGIQ P8/P9/P10 Scanner to request the SCP to get a Printer SOP Instance.   Table 14-20 defines the Printer Module attributes.

**14.3.5 Basic Annotation Box SOP Class**

The Basic Annotation Box IOD is an abstraction to create an annotation box to print server. The DIMSE services that are applicable to the IOD are shown in below table.

**14.3.5.1 DIMSE Service Group**

**TABLE 14-8**

**DIMSE SERVICE GROUP**

| DIMSE Service Element | Usage SCU | Reference |
|---|---|---|
| N-SET | M | see 14.3.5.1.1 |

### 14.3.5.1.1  DIMSE Service Group (N-SET)

The N-SET DIMSE Service is used by LOGIQ P8/P9/P10 Scanner to update the Basic Annotation Box SOP Instance. Table 14-21 defines Basic Annotation Presentation Module Attributes used.

### 14.4  PRINT MANAGEMENT IODS

Within an entity of a DICOM Print Management, attributes are grouped into a related set of attributes.   A set of related attributes is termed a module.   A module facilitates the understanding of the semantics concerning the attributes and how the attributes are related with each other.   A module grouping does not infer any encoding of information into datasets.

Table 14-9, Table 14-10, Table 14-11, Table 14-12 and Table 14-13 identify the defined modules within the entities which comprise the DICOM Print Management Service IODs.   Modules are identified by Module Name.

See DICOM for a complete definition of the entities, modules and attributes.

### 14.4.1  Film Session IOD Module

**TABLE 14-9 FILM SESSION IOD MODULES**

| Module Name | Reference |
|---|---|
| SOP Common Module | 14.5.1.1 |
| Basic Film Session Presentation Module | 14.5.2.1 |
| Basic Film Session Relationship Module | 14.5.2.2 |

### 14.4.2  Basic Film Box IOD Module Table

**TABLE 14-10 BASIC FILM BOX IOD MODULES**

| Module Name | Reference |
|---|---|
| SOP Common Module | 14.5.1.1 |
| Basic Film Box Presentation Module | 14.5.2.3 |
| Basic Film Box Relationship Module | 14.5.2.4 |

### 14.4.3  Basic Image Box IOD Module Table

**TABLE 14-11 BASIC IMAGE BOX IOD MODULES**

| Module Name | Reference |
|---|---|
| SOP Common Module | 14.5.1.1 |
| Image Box Pixel Presentation Module | 14.5.2.5 |

**14.4.4 Printer IOD Module Table**

<p align="center">**TABLE 14-12 PRINTER IOD MODULES**</p>

| Module Name | Reference |
|---|---|
| SOP Common Module | 14.5.1.1 |
| Printer Module | 14.5.2.6 |

**14.4.5 Basic Annotation Box IOD Module Table**

<p align="center">**TABLE 14-13 BASIC ANNOTATION IOD MODULES**</p>

| Module Name | Reference |
|---|---|
| SOP Common Module | 14.5.1.1 |
| Basic Annotation Presentation Module | 14.5.2.7 |

## 14.5 INFORMATION MODULE DEFINITIONS

Please refer to DICOM Standard Part 3 (Information Object Definitions) for a description of each of the entities and modules that comprise the Print Management.

The following modules are included to convey Enumerated Values, Defined Terms, and Optional Attributes supported.

### 14.5.1 General Modules

#### 14.5.1.1 SOP Common Module

This section defines the attributes that are required for proper functioning and identification of the associated SOP Instances. They do not specify any semantics about the Real-World Object represented by the IOD.

<p align="center">**TABLE 14-14 SOP COMMON MODULE ATTRIBUTES**</p>

| Attribute Name | Tag | Type | Attribute Description |
|---|---|---|---|
| SOP Class UID | (0008,0016) | 1 | Varies with Module Instance and DIMSE Service being used. |
| | | | 1.2.840.100011.5.1.1.1 (Film Session) |
| | | | 1.2.840.100011.5.1.1.2 (Film Box) |
| | | | 1.2.840.100011.5.1.1.4 (Image Box) |
| | | | 1.2.840.100011.5.1.1.15 (Basic Annotation Box) |
| | | | 1.2.840.100011.5.1.1.14 (Print Job) |
| SOP Instance UID | (0008,0018) | 1 | Provided by SCP (printer). |
| Specific Character Set | (0008,0005) | 1C | Not used as expanded or replacement character sets not used. |

### 14.5.2 Print Management Modules

For all user configurable tags with no default, no value will be sent if the tag is not configured.

**14.5.2.1 Basic Film Session Presentation Module**

This section defines the attributes that are common for all films of a film session. The attributes described in below table apply when the N-CREATE DIMSE service is used.

**TABLE 14-15 BASIC FILM SESSION PRESENTATION MODULE ATTRIBUTES**

| Attribute Name | Tag | USAGE (SCU) | Attribute Description |
|---|---|---|---|
| Number of Copies | (2000,0010) | U | Defined Terms used (user configurable): Default is 1. Max is 99. |
| Print Priority | (2000,0020) | U | Defined Terms used (user configurable): HIGH, MED, LOW. Default is HIGH. |
| Medium Type | (2000,0030) | U | Defined Terms used (user configurable): PAPER BLUE FILM CLEAR FILM Default is CLEAR FILM. |
| Film Destination | (2000,0040) | U | Defined Terms used (user configurable): MAGAZINE - default PROCESSOR |
| Film Session Label | (2000,0050) | U | User configurable. No default. |
| Memory Allocation | (2000,0060) | U | Not Used |
| Owner Id | (2100,0160) | U | Not Used |

**14.5.2.2 Basic Film Session Relationship Module**

**TABLE 14-16 BASIC FILM SESSION RELATIONSHIP MODULE ATTRIBUTES**

| Attribute Name | Tag | USAGE (SCU) | Attribute Description |
|---|---|---|---|
| Referenced Film Box Sequence | (2000,0500) | U | Not used |
| >Referenced SOP Class UID | (0008,1150) | U | |
| >Referenced SOP Instance UID | (0008,1155) | U | |

**14.5.2.3 Basic Film Box Presentation Module**

The attributes described in below table apply when the N-CREATE DIMSE service is used.

**TABLE 14-17 BASIC FILM BOX PRESENTATION MODULE ATTRIBUTES**

| Attribute Name | Tag | USAGE (SCU) | Attribute Description |
|---|---|---|---|
| Image Display Format | (2010,0010) | M | Enumerated values used (user configurable):<br><br>STANDARD\X,Y, where X and Y can take<br><br>values from 1 to 5.<br>Default is STANDARD\1,1. |
| Annotation Display Format ID | (2010,0030) | U | Not used. |
| Film Orientation | (2010,0040) | U | Defined Terms used (user configurable):<br><br>PORTRAIT - default<br><br>LANDSCAPE |
| Film Size ID | (2000,0050) | U | Defined Terms used (user configurable):<br><br>8INX10IN - default<br><br>10INX12IN<br><br>10INX14IN<br><br>11INX14IN<br><br>14INX14IN<br><br>14INX17IN<br><br>24CMX24CM<br><br>24CMX30CM |
| Magnification Type | (2010,0060) | U | Defined Terms Used (user configurable):<br><br>REPLICATE - default<br><br>BILINEAR<br><br>CUBIC<br><br>NONE |
| Smoothing Type | (2010,0080) | U | Free form text entry field (user configurable) and only sent if Magnification Type is CUBIC.<br>No default |
| Border Density | (2010,0100) | U | Defined Terms Used (user configurable):<br><br>BLACK<br><br>WHITE<br>Default is BLACK. |
| Empty Image Density | (2010,0110) | U | Defined Terms Used (user configurable):<br><br>BLACK<br><br>WHITE<br>Default is WHITE. |

| | | | |
|---|---|---|---|
| Min Density | (2010,0120) | U | User configurable. Set to 0 as default. |
| Max Density | (2010,0130) | U | User configurable. Set to 300 as default. |
| Trim | (2010,0140) | U | Enumerated Values Used (user configurable): YES NO Default is NO. |
| Configuration Information | (2010,0150) | U | User configurable. No default. |

### 14.5.2.4  Basic Film Box Relationship Module

This section defines the attributes that describe the common parameters, which apply for all images on a given sheet of film.

**TABLE 14-18 BASIC FILM BOX RELATIONSHIP MODULE ATTRIBUTES**

| Attribute Name | Tag | USAGE (SCU) | Attribute Description |
|---|---|---|---|
| Referenced Film Session Sequence | (2010,0500) | M | |
| >Referenced SOP Class UID | (0008,1150) | M | 1.2.840.10008.5.1.1.1 |
| >Referenced SOP Instance UID | (0008,1155) | M | Provided by SCP (printer) |
| Referenced Image Box Sequence | (2010,0510) | U | Used for the subsequent handling of Image Boxes |
| >Referenced SOP Class UID | (0008,1150) | U | In case of   Basic Color ImageBox, SOP class UID 1.2.840.10008.5.1.1.4.1 is used. In case of   Basic Grayscale Image Box, SOP class UID 1.2.840.10008.5.1.1.4 is used. |
| >Referenced SOP Instance UID | (0008,1155) | U | |
| Referenced Basic Annotation Sequence | (2010,0520) | U | Used. Provided by Printer SCP. |
| >Referenced SOP Class UID | (0008,1150) | U | Set with Basic Annotation Box SOP Class UID. |
| >Referenced SOP Instance UID | (0008,1155) | U | Set with Basic Annotation Box SOP Instance UID. |

### 14.5.2.5  Image Box Pixel Presentation Module

The attributes described in below table apply when the DIMSE Service N-SET is used.

The first attributes in the table are used for both grayscale and color printing. The attributes within the sequences are used for each type of printing respectively.

**TABLE 14-19 IMAGE BOX PIXEL PRESENTATION MODULE ATTRIBUTES (GRAY SCALE)**

| Attribute Name | Tag | USAGE (SCU) | Attribute Description |
|---|---|---|---|
| Image Position | (2020,0010) | M | Based on the image display format. |
| Polarity | (2020,0020) | U | Defined term, NORMAL |
| Requested Image Size | (2020,0030) | U | Not sent |
| Basic Grayscale Image Sequence | (2020,0110) | M | |
| >Samples Per Pixel | (0028,0002) | M | Value = '1' |
| >Photometric Interpretation | (0028,0004) | M | Defined Term MONOCHROME2 used |
| >Rows | (0028,0010) | M | Value depends on scanning mode and configuration setup. |
| >Columns | (0028,0011) | M | Value depends on scanning mode and configuration setup. |
| >Pixel Aspect Ratio | (0028,0034) | MC | Not used |
| >Bits Allocated | (0028,0100) | M | Value always = 0008H |
| >Bits Stored | (0028,0101) | M | Value always = 0008H |
| >High Bit | (0028,0102) | M | Value always = 0007H |
| >Pixel Representation | (0028,0103) | M | Defined Value '0' - unsigned integer |
| >Pixel Data | (7FE0,0010) | M | |

**TABLE 14-19B IMAGE BOX PIXEL PRESENTATION MODULE ATTRIBUTES (COLOR)**

| Attribute Name | Tag | USAGE (SCU) | Attribute Description |
|---|---|---|---|
| Image Position | (2020,0010) | M | Based on the image display format. |
| Polarity | (2020,0020) | U | Defined term, NORMAL |
| Requested Image Size | (2020,0030) | U | Not sent |
| Basic Color Image Sequence | (2020,0111) | M | |
| >Samples Per Pixel | (0028,0002) | M | Value = '3' |
| >Photometric Interpretation | (0028,0004) | M | Defined Term RGB used |
| >Rows | (0028,0010) | M | Value depends on scanning mode and configuration setup. |
| >Columns | (0028,0011) | M | Value depends on scanning mode and configuration setup. |
| >Pixel Aspect Ratio | (0028,0034) | MC | Not used |
| >Bits Allocated | (0028,0100) | M | Value always = 0008H |
| >Bits Stored | (0028,0101) | M | Value always = 0008H |
| >High Bit | (0028,0102) | M | Value always = 0007H |
| >Pixel Representation | (0028,0103) | M | Defined Value '0' - unsigned integer |
| >Pixel Data | (7FE0,0010) | M | |
| >Planar Configuration | (0028, 0006) | M | 0001H, color-by-plane, when Basic Color Image Sequence is set |

### 14.5.2.6  Printer Module

This section defines the attributes that are used to monitor the status of the printer. The attributes described in below table apply when the DIMSE Service N-GET is used.

**TABLE 14-20 PRINTER MODULE ATTRIBUTES**

| Attribute Name | Tag | USAGE (SCU) | Attribute Description |
|---|---|---|---|
| Printer Status | (2110,0010) | U | Used to check the status of the printer before a print operation is started. If the printer status is FAILURE, the print operation is aborted, a message is displayed and the print files reside in the print buffer. |
| Printer Status Info | (2110,0020) | U | If the "Printer Status" is "FAILURE" then this status information is displayed, and the print files resides in the print buffer. |
| Printer Name | (2110,0030) | U | Requested, but not used |
| Manufacturer | (0008,0070) | U | Requested, but not used |
| Manufacturer Model Name | (0008,1090) | U | Requested, but not used |
| Device Serial Number | (0018,1000) | U | Requested, but not used |
| Software Versions | (0018,1020) | U | Requested, but not used |
| Date Last Calibration | (0018,1200) | U | Requested, but not used |
| Last Calibration | (0018,1201) | U | Requested, but not used |

### 14.5.2.7 Basic Annotation Presentation Module

This section defines the attributes that are used to set Basic Annotation Box. The attributes described in below table apply when the DIMSE Service N-SET is used.

**TABLE 14-21 BASIC ANNOTATION PRESENTATION MODULE ATTRIBUTES**

| Attribute Name | Tag | USAGE (SCU) | Attribute Description |
|---|---|---|---|
| Annotation Position | (2030,0010) | U | Supported. |
| Text String | (2030,0020) | U | Text string containing Patient Id and Patient Name. |

# 15. STUDY ROOT QUERY/RETRIEVE INFORMATION MODEL

## 15.1 INTRODUCTION

This section specifies the use of the DICOM Study Root Query/Retrieve Model used to organize data and against which a Query/Retrieve will be performed. The contents of this section are:

15.2 - Information Model Description

15.3 - Information Model Entity-Relationship Model

15.4 - Information Model Keys

## 15.2 STUDY ROOT INFORMATION MODEL DESCRIPTION

This section defines the implementation of Study Root Query/Retrieve Information Model.

## 15.3 STUDY ROOT INFORMATION MODEL ENTITY-RELATIONSHIP MODEL

The Entity-Relationship diagram for the Study Root Information Model schema is shown in Illustration 15.3-1**.** In this figure, the following diagrammatic convention is established to represent the information organization:

- each entity is represented by a rectangular box

- each relationship is represented by a diamond shaped box.

- the fact that a relationship exists between two entities is depicted by lines connecting the corresponding entity boxes to the relationship boxes.

The relationships are fully defined with the maximum number of possible entities in the relationship shown. In other words, the relationship between Series and Image can have up to n Images per Series.

**ILLUSTRATION 15.3-1**
**STUDY ROOT QUERY/RETRIEVE INFORMATION MODEL E/R DIAGRAM**

```
                    ┌──────────────┐
                    │    Study     │
                    └──────────────┘
                            │
                            ▼ 1
                         ◇ contains ◇
                            │
                            ▼ 1,n
                    ┌──────────────┐
                    │    Series    │
                    └──────────────┘
                            │
                            ▼ 1
                         ◇ contains ◇
                            │
                            ▼ 0,n
                    ┌──────────────┐
                    │    Image     │
                    └──────────────┘
```
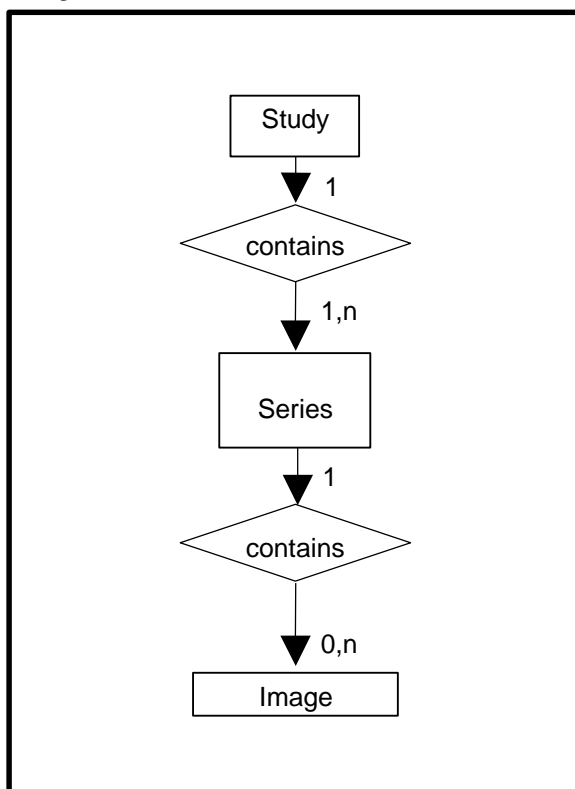
### 15.3.1  Entity Descriptions

Please refer to DICOM Standard PS 3.4 (Service Class Specifications) for a description of each of the levels contained within the Study Root Query/Retrieve Information Model.

### 15.3.2  LOGIQ P8/P9/P10 Scanner Mapping of DICOM entities

**TABLE 15-1**
**MAPPING OF DICOM ENTITIES TO LOGIQ P8/P9/P10 SCANNER ENTITIES**

| DICOM | LOGIQ P8/P9/P10 Scanner Entity |
|-------|--------------------------------|
| Study | Exam |
| Series | Exam |
| Image | Image |

## 15.4  INFORMATION MODEL KEYS

Please refer to DICOM Standard PS 3.4 (Service Class Specifications) for a description of each of the levels contained within the Study Root Query/Retrieve Information Model.

The following Level descriptions are included to specify what data elements are supported and what type of matching can be applied. It should be noted that they are the same ones as defined in the DICOM Standard PS 3.4 (Service Class Specifications).

**15.4.1 Supported Matching**

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

- Single Value matching (S)
- List of UID matching
- Universal Matching (U)
- Wild Card Matching (*)
- Range of date, Range of Time (R)
- Sequence Matching

Fields with "Filtering is supported" in the Matching column can be controlled from the Search screen. This means that the user can filter the downloaded C-FIND result, to view a limited set of the result.

All non-required matching fields can be configured in Config screen to be either enabled, enabled with a constant value or disabled. The constant value will be used as entered by user.

**15.4.2 Study Level**

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

**TABLE 15-2**
**STUDY LEVEL ATTRIBUTES FOR THE STUDY ROOT**
**QUERY/RETRIEVE INFORMATION MODEL**

| Attribute Name | Tag | Type | Type of Matching |
|---|---|---|---|
| Study Date | (0008,0020) | R | R<br>(Filter is supported) |
| Study Time | (0008,0030) | R | R |
| Accession Number | (0008,0050) | R | *, S, U<br>(Filter is supported) |
| Patient's Name | (0010,0010) | R | *, U<br>(Filter is supported) |
| Patient ID | (0010,0020) | R | *, U<br>(Filter is supported) |
| Study ID | (0020,0010) | R | S,*, U |
| Study Instance UID | (0020,000D) | U | UNIQUE |
| Modalities in Study | (0008,0061) | O | S,*, U |
| Referring Physician's Name | (0008,0090) | O | S,*, U |
| Study Description | (0008,1030) | O | S,*, U<br>(Filter is supported) |
| Procedure Code Sequence | (0008,1032) | O | U |
| Name of Physician(s) Reading Study | (0008,1060) | O | U |
| Admitting Diagnoses Description | (0008,1080) | O | U |
| Referenced Study Sequence | (0008,1110) | O | U |
| Referenced Patient Sequence | (0008,1120 | O | U |
| Patient's Birth Date | (0010,0030) | O | R |
| Patient's Birth Time | (0010,0032) | O | R |

| | | | |
|---|---|---|---|
| Patient's Sex | (0010,0040) | O | S, U |
| Other Patient IDs | (0010,1000) | O | U |
| Other Patient Names | (0010,1001) | O | U |
| Patient's Age | (0010,1010) | O | U |
| Patient's Size | (0010,1020) | O | U |
| Patient's Weight | (0010,1030) | O | U |
| Ethnic Group | (0010,2160) | O | U |
| Occupation | (0010,2180) | O | U |
| Additional Patient History | (0010,21B0) | O | U |
| Patient Comments | (0010,4000) | O | U |
| Other Study Numbers | (0020,1070) | O | U |
| Number of Patient Related Studies | (0020,1200) | O | U |
| Number of Patient Related Series | (0020,1202) | O | U |
| Number of Patient Related Instances | (0020,1204) | O | U |
| Number of Study Related Series | (0020,1206) | O | U |
| Number of Study Related Instances | (0020,1208) | O | U |
| Interpretation Author | (4008,010C) | O | U |

**TABLE 15-3**
**Q/R STUDY LEVEL AND LOCATION FOR RETRIEVE ATTRIBUTES**

| Attribute Name | Tag | Type | Note |
|---|---|---|---|
| Query Retrieve Level | (0008,0052) | - | Value = STUDY |

**TABLE 15-4**
**Q/R SPECIFIC CHARACTER SET ATTRIBUTES**

| Attribute Name | Tag | Type | Note |
|---|---|---|---|
| Specific Character Set | (0008,0005) | - | Set to "ISO-IR 100" if extended characters are used in query. ISO-IR 100 is supported in responses. |

### 15.4.3 Series Level

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

**TABLE 15-5**
**SERIES LEVEL ATTRIBUTES FOR THE STUDY ROOT**
**QUERY/RETRIEVE INFORMATION MODEL**

| Attribute Name | Tag | Type | Type of Matching |
|---|---|---|---|
| Modality | (0008,0060) | R | U |
| Series Number | (0020,0011) | R | U |

| Series Instance UID | (0020,000E) | U | UNIQUE |
|---|---|---|---|
| Number of Series Related Instances | (0020,1209) | O | U |
| Series Date | (0008,0021) | O | R |
| Series Time | (0008,0031) | O | R |
| Performing Physicians' Name | (0008,1050) | O | U |
| Protocol Name | (0018,1030) | O | U |
| Series Description | (0008,103E) | O | U |
| Operator's Name | (0008,1070) | O | U |
| Institutional Department Name | (0008,1040) | O | U |
| Software Versions | (0018,1020) | O | U |
| Performed Procedure Step Start Date | (0040,0244) | O | R |
| Performed Procedure Step Start Time | (0040,0245) | O | R |

**TABLE 15-6**
**Q/R SERIES LEVEL AND LOCATION FOR RETRIEVE ATTRIBUTES**

| Attribute Name | Tag | Type | Note |
|---|---|---|---|
| Query Retrieve Level | (0008,0052) | - | Value = SERIES |

**TABLE 15-7**
**Q/R SPECIFIC CHARACTER SET ATTRIBUTES**

| Attribute Name | Tag | Type | Note |
|---|---|---|---|
| Specific Character Set | (0008,0005) | - | Set to "ISO-IR 100" if extended characters are used in query. ISO-IR 100 is supported in responses. |

### 15.4.4 Image Level

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

**TABLE 15-8**
**IMAGE LEVEL ATTRIBUTES FOR THE STUDY ROOT**
**QUERY/RETRIEVE INFORMATION MODEL**

| Attribute Name | Tag | Type | Type of Matching |
|---|---|---|---|
| Instance Number | (0020,0013) | R | U |
| SOP Instance UID | (0008,0018) | U | UNIQUE |
| Contrast/Bolus Agent | (0018,0010) | O | U |

**TABLE 15-9**
**Q/R IMAGE LEVEL AND LOCATION FOR RETRIEVE ATTRIBUTES**

| Attribute Name | Tag | Type | Note |
|---|---|---|---|
| Query Retrieve Level | (0008,0052) | - | Value = IMAGE |

**TABLE 15-10**
**Q/R SPECIFIC CHARACTER SET ATTRIBUTES**

| Attribute Name | Tag | Type | Note |
|---|---|---|---|
| Specific Character Set | (0008,0005) | - | Set to "ISO-IR 100" if extended characters are used in query. ISO-IR 100 is supported in responses. |

## 15.5 PRIVATE DATA DICTIONARY

No private data dictionary is defined.

# 16. DICOM SR TEMPLATES

## 16.1 VASCULAR ULTRASOUND PROCEDURE REPORT

This section describes the contents of the Vascular Ultrasound Procedure Report (TID 5100) SR.

### 16.1.1 Vascular Template Structure
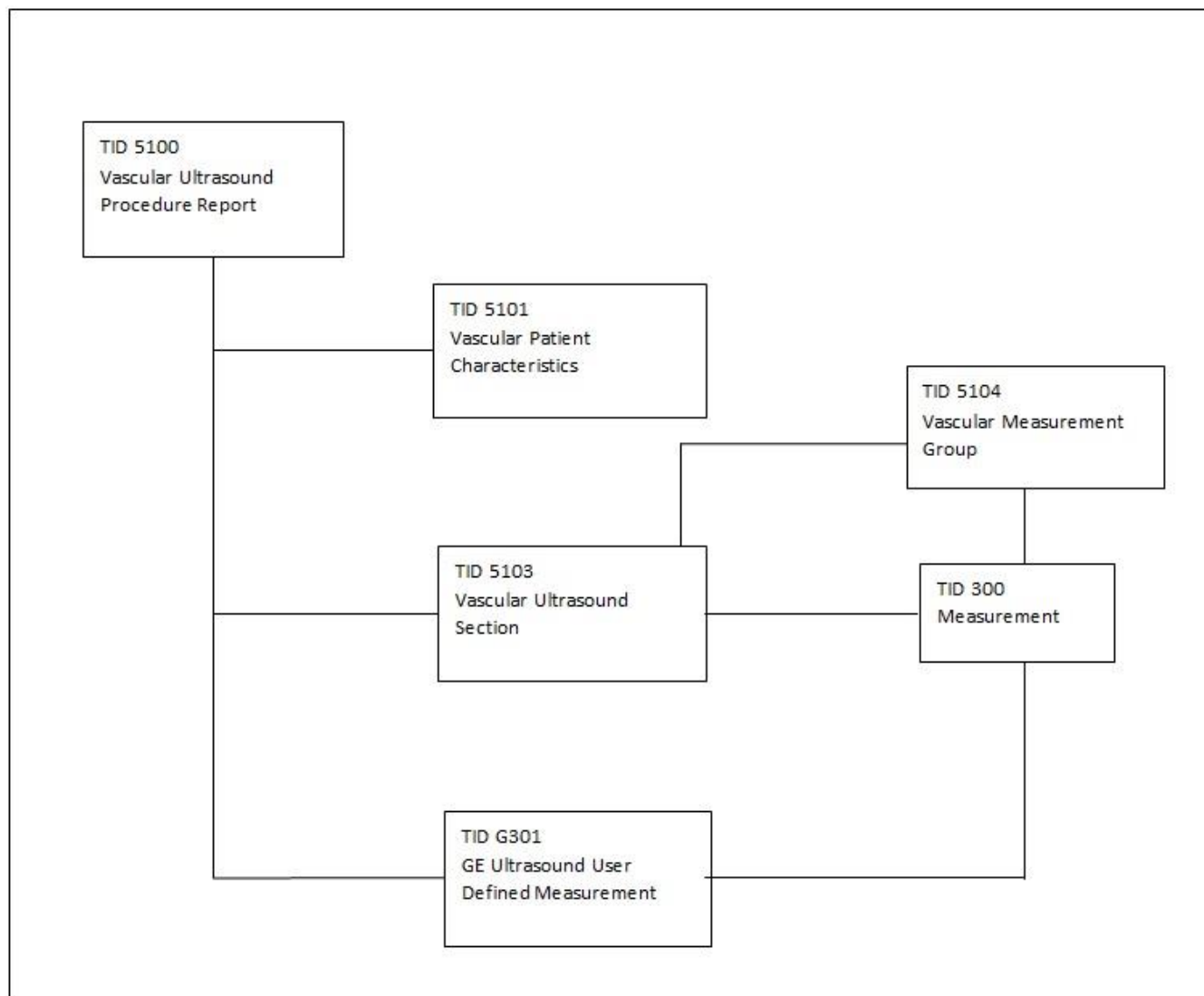


### 16.1.2 Usage and Extension of TID 5100 Vascular Ultrasound Report

LOGIQ P8/P9/P10 Scanner supports the following template TID 5100 for SOP Instances created by this product when exam types selected are Vascular and Abdomen.

**TABLE 16-1 TID 5100**

| | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | EV (125100, DCM, "Vascular Ultrasound Procedure Report") | 1 | M | | |
| 2 | > | CONTAINS | INCLUDE | DTID (5101) Vascular Patient Characteristics | 1 | U | | |
| 3 | > | CONTAINS | INCLUDE | DTID (5103) Vascular Ultrasound Section | 1-n | U | | |
| 4 | > | CONTAINS | INCLUDE | DTID (G301) GE Ultrasound User Defined Measurement | 1-n | UC | When User creates user defined measurements via Measurement Configuration | |

### 16.1.3  TID 5101 Vascular Patient Characteristics

**TABLE 16-2 TID 5101**

| | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | EV (121118, DCM, "Patient Characteristics") | 1 | M | | |
| 2 | > | CONTAINS | NUM | EV (121033, DCM, "Subject Age") | 1 | U | | Units = DCID (7456) Units of Measure for Age |
| 3 | > | CONTAINS | CODE | EV (121032, DCM, "Subject Sex") | 1 | U | | DCID (7455) Sex |
| 4 | > | CONTAINS | NUM | EV (8867-4, LN, "Heart Rate") | 1 | U | | |
| 5 | > | CONTAINS | NUM | EV (F-008EC, SRT, "Systolic Blood Pressure") | 1 | U | | |
| 6 | > | CONTAINS | NUM | EV (F-008ED, SRT, "Diastolic Blood Pressure") | 1 | U | | |

### 16.1.4  TID 5102 Vascular Procedure Summary Section

**TABLE 16-3 TID 5102**

| | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | DT (121111, DCM, "Summary") | 1 | M | | |
| 2 | > | CONTAINS | TEXT | DCID 12101 "Vascular Summary" | 1-n | M | | May contain comments May contain indications |

### 16.1.5  TID 5103 Vascular Ultrasound Section

**TABLE 16-4 TID 5103**

| | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | DT (121070, DCM, "Findings") | 1 | M | | |
| 2 | > | HAS CONCEPT MOD | CODE | EV (G-C0E3, SRT, "Finding Site") | 1 | M | | See Table 16-6 GEU Applications and Extensions-$SectionScope |

| 3 | > | HAS CONCEPT MOD | CODE | EV (G-C171, SRT, "Laterality") | 1 | MC | IFF Laterality is defined | See Table 16-9 GE Ultrasound Sidedness |
|---|---|---|---|---|---|---|---|---|
| 4 | > | HAS CONCEPT MOD | CODE | EV (G-0373, SRT, "Image Mode") | 1 | U | | See Table 16-8 GE Ultrasound Modes |
| 5 | > | CONTAINS | INCLUDE | DTID (5104) Vascular Measurement Group | 1-n | M | | See Table 16-5 TID 5104 |
| 6 | > | CONTAINS | INCLUDE | DTID (300) Measurement | 1-n | U | | $Measurement = $AnatomyRatio  Anatomy ratio is from Table 16-5 |

### 16.1.6 TID 5104 Vascular Ultrasound Measurement Group (extended)

**TABLE 16-5 TID 5104**

| | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | $Anatomy GEU Parameters | 1 | M | | See Table 16-6 GEU Applications and Extensions |
| 2 | > | HAS CONCEPT MOD | CODE | EV (G-A1F8, SRT, 'Topographical Modifier') | 1 | U | | See Table 16-10 GE Ultrasound Vessel Location |
| 3 | > | HAS CONCEPT MOD | TEXT | EV (125101, DCM, 'Vessel Branch') | 1 | UC | When user name vessel more specific | Vessel branch defined by user. |
| 4 | > | HAS CONCEPT MOD | TEXT | EV (GEU-1005-7, 99GEMS, Anatomy Label) | 1 | UC | When user insert user defined study measurements | Text Value of Vessel Name or Folder |
| 5 | > | CONTAINS | INCLUDE | DTID (300) Measurement | 1-n | U | | $Measurement = See 16.1.11  $Derivation = See DCID (3627) Measurement Type  Anatomy ratio is from Table 16-5 |

### 16.1.7 GEU Applications and Extensions

This section specifies for each type of vascular study the anatomy for which the application can create measurements, and the mapping from the user interface abbreviations to the SNOMED codes.

**TABLE 16-6 GEU APPLICATIONS AND EXTENSIONS**

| Section Scope  DT (121070, DCM, 'Findings') | Section Laterality  EV (G-C171, SRT, "Laterality") | Anatomy | Anatomy Ratio | GEU Parameters  Base Measurement Concept Name |
|---|---|---|---|---|
| | | | | |

| (T-40501, SRT, 'Blood Vessel of Head') | (G-A101, SRT, Left) for Left, (G-A100, SRT, Right) for Right. Or (G-A103, SRT, Unilateral) | DCID 12105 Intracranial Cerebral Vessels Or DCID 12106 Intracranial Cerebral Vessels (Unilateral) | | Anatomy GEU parameter | Code and Description |
|---|---|---|---|---|---|
| | | | | ICA | (T-45300, SRT, 'Internal Carotid Artery') |
| | | | | MCA | (T-45600, SRT, 'Middle Cerebral Artery') |
| | | | | ACA | (T-45540, SRT, 'Anterior Cerebral Artery') |
| | | | | PCA | (T-45900, SRT, 'Posterior Cerebral Artery') |
| | | | | PComA | (T-45320, SRT, 'Posterior Communicating Artery') |
| | | | | AComA | (T-45530, SRT, 'Anterior Communicating Artery') |
| | | | | BA | (T-45800, SRT, 'Basilar Artery') |
| | | | | VERT | (T-45700, SRT, 'Vertebral Artery') |
| | | | | Basilar | (T-45800, SRT, 'Basilar Artery') |
| | | | | Ves | (GEU-1005-6, 99GEMS, 'User Vessel Anatomy'); (GEU-1005-7, 99GEMS, 'Anatomy Label') : Ves |
| | | | | SVD | (125107,DCM,"Sample Volume Depth") |
| | | | | AC | (125106,DCM,"Doppler Angle") |
| | | | | Others | (GEU-1005-3, 99GEMS, General Anatomy) |

**Table v.1 TCD Study Folder Code MAP**

| (T-45005, SRT, 'Artery of neck) | (G-A101, SRT, Left) for Left, or (G-A100, SRT, Right) for Right. | DCID (12104) Extracranial Arteries | DCID (12123) Carotid Ratios | Anatomy GEU parameter | Code and Description |
|---|---|---|---|---|---|
| | | | | VERT | (T-45700, SRT, 'Vertebral Artery') |
| | | | | CCA | (T-45100, SRT, 'Common Carotid Artery') |
| | | | | ICA | (T-45300, SRT, 'Internal Carotid Artery') |
| | | | | BULB | (T-45170, SRT, 'Carotid Bulb') |
| | | | | ECA | (T-45200, SRT, 'External Carotid Artery') |
| | | | | SUBC | (T-46100, SRT, 'Subclavian Artery') |
| | | | | BIF | (T-45160, SRT, 'Carotid Bifurcation') |
| | | | | STA | (T-45270, SRT, 'Superficial Temporal Artery') |
| | | | | Frontal Branch | (T-45270, SRT, 'Superficial Temporal Artery'); (125101, DCM, 'Vessel branch'): 'Frontal' |
| | | | | ParietalBranch | (T-45270, SRT, 'Superficial Temporal Artery'); (125101, DCM, 'Vessel branch'): 'Parietal' |
| | | | | Pre-Stent | (GEU-1004-71, 99GEMS, 'Pre-Stent') |
| | | | | Stent | (A-25500, SRT, 'Stent') |
| | | | | Post-Stent | (GEU-1004-72, 99GEMS, 'Post-Stent') |
| | | | | 2D/Stenosis | (T-45300, SRT, Internal Carotid Artery) |
| | | | | Ves | (GEU-1005-6, 99GEMS, 'User Vessel Anatomy'); (GEU-1005-7, 99GEMS, 'Anatomy Label') : Ves |
| | | | | Others | (GEU-1005-3, 99GEMS, General Anatomy) |

**Table v.2 Carotid Study FOLDER Code MAPS**

| (T-47040, SRT, 'Artery of Lower Extremity') | (G-A101, SRT, Left) for Left, or (G-A100, SRT, Right) for Right. | DCID (12109) Lower Extremity Arteries | | Anatomy GEU parameter | Code and Description |
|---|---|---|---|---|---|
| | | | | ComIliac | (T-46710, SRT, 'Common Iliac Artery') |
| | | | | ExtIliac | (T-46910, SRT, 'External Iliac Artery') |
| | | | | ComFemoral | (T-47400, SRT, 'Common Femoral Artery') |
| | | | | SupFemoral | (T-47403, SRT, 'Superficial Femoral Artery') |
| | | | | Popliteal | (T-47500, SRT, 'Popliteal Artery') |
| | | | | AntTibial | (T-47700, SRT, 'Anterior Tibial Artery') |
| | | | | PostTibial | T-47600, SRT, 'Posterior Tibial Artery') |
| | | | | Peroneal | (T-47630, SRT, 'Peroneal Artery') |
| | | | | DorsPedis | (T-47741, SRT, 'Dorsalis Pedis Artery') |
| | | | | DeepFemoral | (T-47440, SRT, 'Profunda Femoris Artery') |
| | | | | Profunda | (T-47440, SRT, 'Profunda Femoris Artery') |
| | | | | Pseudo | (M-32390, SRT, 'Pseudo Aneurysm') |
| | | | | AVF | (M-39390, SRT, 'AV Fistula') |
| | | | | Graft | (T-D000F, SRT, 'Vascular Graft') |
| | | | | Stent | (A-25500, SRT, 'Stent') |
| | | | | Pre-Stent | (GEU-1004-71, 99GEMS, 'Pre-Stent') |
| | | | | Post-Stent | (GEU-1004-72, 99GEMS, 'Post-Stent') |
| | | | | Ves | (GEU-1005-6, 99GEMS, 'User Vessel Anatomy'); (GEU-1005-7, 99GEMS, 'Anatomy Label') : Ves |
| | | | | 2D/Stenosis | (T-47403, SRT, 'Superficial Femoral Artery') |
| | | | | Others | (GEU-1005-3, 99GEMS, General Anatomy) |
| | | | | **Table V.3 LEA STUDY Folder CODE MAPS** | |

| (T-49403, SRT, 'Vein of Lower Extremity') | (G-A101, SRT, Left) for Left, or (G-A100, SRT, Right) for Right. | DCID (12110) Lower Extremity of Veins | | Anatomy GEU parameter | Code and Description |
|---|---|---|---|---|---|
| | | | | Popliteal | (T-49640, SRT, 'Popliteal Vein') |
| | | | | LSaphenous | (T-49550, SRT, 'Lesser Saphenous Vein') |
| | | | | AntTibial | (T-49630, SRT, 'Anterior Tibial Vein') |
| | | | | PostTibial | (T-49620, SRT, 'Posterior Tibial Vein') |
| | | | | Peroneal | (T-49650, SRT, 'Peroneal Vein') |
| | | | | Profunda | (T-49660, SRT, 'Profunda Femoris Vein') |
| | | | | Gsaphenous | (T-49530, SRT, 'Great Saphenous Vein') |
| | | | | GreatSaphThigh | (R-10259, SRT, 'Great Saphenous Vein of Thigh') |
| | | | | GreatSaphCalf | (R-1025A, SRT, 'Great Saphenous Vein of Calf') |
| | | | | GreatSaphKnee | (T-49530, SRT, 'Great Saphenous Vein') with finding side (T-D9200, SRT, 'Knee') |
| | | | | GreatSaphAnkle | (T-49530, SRT, 'Great Saphenous Vein') with finding side (T-15750, SRT, 'Ankle') |
| | | | | SaphPopJunc | (T-4941A, SRT, 'Saphenopopliteal junction') |
| | | | | SmallSaphCalf | (T-49550, SRT, 'Lesser Saphenous Vein') w/i finding side (T-D9440, SRT, 'Calf of Leg') |
| | | | | SmallSaphAnkle | (T-49550, SRT, 'Lesser Saphenous Vein') w/I finding side (T-15750, SRT, 'Ankle') |
| | | | | SmallSaphCranialExt | (GEU-1004-45, 99GEMS, 'Lesser Saphenous Vein Flows to Cranial Ext') |
| | | | | SaphFemJunc | (T-D930A, SRT, 'Saphenofemoral Junction') |
| | | | | Femoral | (G-035B, SRT, 'Femoral Vein') |
| | | | | ComFemoral | (G-035B, SRT, 'Common Femoral Vein') |
| | | | | ComIliac | (T-48920, SRT, 'Common Iliac Vein') |
| | | | | ExtIliac | (T-48930, SRT, 'External Iliac Vein') |
| | | | | IVC | (T-48710, SRT, 'Inferior Vena Cava') |
| | | | | Ves | (GEU-1005-6, 99GEMS, 'User Vessel Anatomy'); (GEU-1005-7, 99GEMS, 'Anatomy Label') : Ves |
| | | | | Others | (GEU-1005-3, 99GEMS, General Anatomy) |

**Table V.4 LEV STUDY FOLDER CODE MAPS**

| (T-47020, SRT, 'Artery of Upper Extremity') | (G-A101, SRT, Left) for Left, or (G-A100, SRT, Right) for Right. | DCID (12107) Upper Extremity Arteries | | **Section Artery of Upper Extremity** |
|---|---|---|---|---|

| Anatomy GEU parameter | Code and Description |
|---|---|
| SUBC | (T-46100, SRT, 'Subclavian artery') |
| Axill | (T-47100, SRT, 'Axillary artery') |
| BrachialA | (T-47160, SRT, 'Brachial artery') |
| RadialA | (T-47300, SRT, 'Radial artery') |
| UlnarA | (T-47200, SRT, 'Ulnar artery') |
| Palmar | (T-47340, SRT, 'Deep Palmar Arch of Radial Artery') |
| Innominate | (T-46010, SRT, 'Innominate Artery') |
| Pseudo | (M-32390, SRT, 'Pseudo Aneurysm') |
| AVF | (M-39390, SRT, 'AV Fistula') |
| Ves | (GEU-1005-6, 99GEMS, 'User Vessel Anatomy'); (GEU-1005-7, 99GEMS, 'Anatomy Label') : Ves |
| Stent | (A-25500, SRT, 'Stent') |
| Pre-Stent | (GEU-1004-71, 99GEMS, 'Pre-Stent') |
| Post-Stent | (GEU-1004-72, 99GEMS, 'Post-Stent') |
| 2D/Stenosis | (T-46100, SRT, 'Subclavian artery') |
| Others | (GEU-1005-3, 99GEMS, General Anatomy) |

**Table V.5 UEA Study Folder CODE MAPS**

| (T-49103, SRT, 'Vein of Upper Extremity') | (G-A101, SRT, Left) for Left, or (G-A100, SRT, Right) for Right. | DCID (12108) Upper Extremity Veins | | Anatomy GEU parameter | Code and Description |
|---|---|---|---|---|---|
| | | | | JugularV | (T-48170, SRT, 'Internal Jugular vein') |
| | | | | InnoV | (T-48620, SRT, 'Innominate vein') |
| | | | | SUBCV | (T-48330, SRT, 'Subclavian vein') |
| | | | | AxillV | (T-49110, SRT, 'Axillary vein') |
| | | | | CephV | (T-49240, SRT, 'Cephalic vein') |
| | | | | BasilV | (T-48052, SRT, 'Basilic vein') |
| | | | | BracV | (T-49350, SRT, 'Brachial vein') |
| | | | | McubV | (T-49250, SRT, 'Median Cubital vein') |
| | | | | RadialV | (T-49340, SRT, 'Radial vein') |
| | | | | UlnarV | (T-49330, SRT, 'Ulnar vein') |
| | | | | CephArm | (T-49240, SRT, 'Cephalic vein'); finding side (T-D8200, SRT, 'Arm') |
| | | | | CephAntecub | (T-49240, SRT, 'Cephalic vein'); finding side (T-49215, SRT, 'Antecubital Vein) |
| | | | | CephForearm | (T-49240, SRT, 'Cephalic vein'); finding side (T-12402, SRT, 'Forearm') |
| | | | | CephWrist | (T-49240, SRT, 'Cephalic vein'); finding side (T-D8600, SRT, 'Wrist') |
| | | | | BasilicArm | (T-48052, SRT, 'Basilic vein') finding side (T-D8200, SRT, 'Arm') |
| | | | | BasilicAntecub | (T-48052, SRT, 'Basilic vein'); finding side (T-49215, SRT, 'Antecubital Vein) |
| | | | | BasilicForearm | (T-48052, SRT, 'Basilic vein'); finding side (T-12402, SRT, 'Forearm') |
| | | | | BasilicWrist | (T-48052, SRT, 'Basilic vein'); finding side (T-D8600, SRT, 'Wrist') |
| | | | | Pseudo | (M-32390, SRT, 'Pseudo Aneurysm') |
| | | | | AVF | (M-39390, SRT, 'AV Fistula') |
| | | | | Ves | (GEU-1005-6, 99GEMS, 'User Vessel Anatomy'); (GEU-1005-7, 99GEMS, 'Anatomy Label') : Ves |
| | | | | Graft | (T-D000F, SRT, 'Vascular Graft') |
| | | | | Others | (GEU-1005-3, 99GEMS, General Anatomy) |

**TABLE V.6 UEV STUDY FOLDER CODE MAPS**

| (T-71019, SRT, 'Vascular Structure of Kidney') | (G-A101, SRT, Left) for Left, or (G-A100, SRT, Right) for Right. | DCID(12115) Renal Vessels | DCID(12124) Renal Ratios | | |
|---|---|---|---|---|---|
| | | | | **Anatomy GEU parameter** | **Code and Description** |
| | | | | MRenalA | (T-46600, SRT, 'Renal Artery') |
| | | | | RenalV | (T-48740, SRT, 'Renal Vein') |
| | | | | SegmentalA | (T-46659, SRT, 'Segmental Artery') |
| | | | | InterlobarA | (T-4667D, SRT, 'Interlobar Artery of Kidney') |
| | | | | ArcurateA | (T-4668A, SRT, 'Arcuate Artery of the Kidney') |
| | | | | Aorta | (T-42000, SRT, 'Aorta') |
| | | | | Renal Volume | (T-71000, SRT, 'Kidney') |
| | | | | Spleen | (T-C3000, SRT, 'Spleen') |
| | | | | AAA | (D3-83305,SRT,"Abdominal Aortic Aneurysm") |
| | | | | Bladder | (T-74000, SRT, 'Bladder') |
| | | | | PostBladder | (GEU-1004-62, 99GEMS, 'Post Bladder') |
| | | | | Iliac | (T-46710, SRT, 'Common Iliac Artery') |
| | | | | RenalLength | (T-71000, SRT, 'Kidney') |
| | | | | NewBladder | (T-74000, SRT, 'Bladder') |
| | | | | NewPostBladder | (GEU-1004-62, 99GEMS, 'Post Bladder') |
| | | | | RAOrigin | (GEU-1005-4, 99GEMS, 'Renal Artery Origin') |
| | | | | Ves | (GEU-1005-6, 99GEMS, 'User Vessel Anatomy'); (GEU-1005-7, 99GEMS, 'Anatomy Label') : Ves |
| | | | | Others | (GEU-1005-3, 99GEMS, General Anatomy) |

**TABLE V.7-1. RENAL STUDY CODE MAPS**

| (T-46002, SRT, 'Artery of Abdomen'), | (G-A101, SRT, Left) for Left, (G-A100, SRT, Right) for Right. Or (G-A103, SRT, Unilateral) | DCID 12111 or (12112) Abdominal Arteries (unilateral) | | |
|---|---|---|---|---|

| Anatomy GEU parameter | Code and Description |
|---|---|
| Aorta | (T-42000, SRT, 'Aorta') |
| Renal Length | (T-71000, SRT, 'Kidney') |
| Spleen | (T-C3000, SRT, 'Spleen') |
| Celiac | (T-46400, SRT, 'Celiac Axis') |
| Splenic A | (T-46460, SRT, 'Splenic Artery') |
| SMA | (T-46510, SRT, 'Superior Mesenteric Artery') |
| IMA | (T-46520, SRT, 'Inferior Mesenteric Artery') |
| CIA | (T-46710, SRT, 'Common Iliac Artery') |
| Stent | (A-25500, SRT, 'Stent') |
| Pre-Stent | (GEU-1004-71, 99GEMS, 'Pre-Stent') |
| Post-Stent | (GEU-1004-72, 99GEMS, 'Post-Stent') |
| HepaticA | (T-46420, SRT, 'Hepatic Artery') |
| IIA | (T-46740, SRT, 'Internal Iliac Artery') |

**Table V.8-1 Abdomen Study CODE MaPs (Page 1)**

| Anatomy GEU parameter | Code and Description |
|---|---|
| Gall Bladder | (T-63000, SRT, 'Gall Bladder') |
| CBD | (T-60610, SRT, 'Bile Duct') |
| Liver | (T-62002, SRT, 'Liver') |
| Pancreas | (T-D4034, SRT, 'Pancreas') |
| Others | (GEU-1005-3, 99GEMS, General Anatomy) |

**TABLE V.8-2 ABDOMEN STUDY CODE MAPS (B-MODE)**

| (T-487A0, SRT, 'Vein of Abdomen) | (G-A101, SRT, Left) for Left, (G-A100, SRT, Right) for Right. Or (G-A103, SRT, Unilateral) | DCID 12113 or (12114) Abdominal Veins lateral (unilateral) | | |
|---|---|---|---|---|

| Anatomy GEU parameter | Code and Description |
|---|---|
| IIV | (T-48940, SRT, 'Internal Iliac Vein') |
| PortalVein | (T-48810, SRT, 'Portal Vein') |
| SMV | (T-48840, SRT, 'Superior Mesenteric Vein') |
| PortalV | (T-48810 , SRT, 'Portal Vein') |
| SplenicV | (T-48890, SRT, 'Splenic Vein') |
| IMV | (T-48910, SRT, 'Inferior Mesenteric Vein') |
| HepaticV | (T-48720, SRT, 'Hepatic Vein' ) |
| PortalV | (T-4882A, SRT, 'Right Main Branch of Portal Vein') |
| PortalV | (T-4881F, SRT, 'Left Main Branch of Portal Vein') |
| HepaticA | (T-46420, SRT, 'Hepatic Artery') |
| CHA | (T-46421, SRT, 'Common Hepatic Artery') |
| Stent | (A-25500, SRT, 'Stent') |
| Pre-Stent | (GEU-1004-71, 99GEMS, 'Pre-Stent') |
| Post-Stent | (GEU-1004-72, 99GEMS, 'Post-Stent') |

**V – 9.2 Abdomen Vein Study Folder Code Maps**

| (T-D000F, SRT, 'Vascular Graft') | (G-A101, SRT, Left) for Left, (G-A100, SRT, Right) for Right. Or (G-A103, SRT, Unilateral) | DCID 12113 or (12114) Abdominal Veins lateral (unilateral) | | | |
|---|---|---|---|---|---|

| Anatomy GEU parameter | Code and Description |
|---|---|
| Limb | (GEU-1004-46, 99GEMS, 'Limb') |
| Inflow | (GEU-1004-63, 99GEMS, 'Inflow') |
| Anast | (M-18200, SRT, 'Anastomosis') |
| Outflow | (GEU-1004-44, 99GEMS, 'Outflow') |
| Thigh | (T-D9100, SRT, 'Thigh') |
| Knee | (T-D9200, SRT, 'Knee') |
| Calf | (T-D9440, SRT, 'Calf of Leg') |
| Ankle | (T-15750, SRT, 'Ankle') |
| RunOff | (GEU-1004-43, 99GEMS, 'RunOff') |
| VGraft | (T-D000F, SRT, 'Vascular Graft') |
| Arm | (T-D8200, SRT, 'Arm') |
| Ante Cub | (T-49215, SRT, 'Antecubital Vein') |
| Forearm | (T-12402, SRT, 'Forearm') |
| Wrist | (T-15460, SRT, 'Wrist joint') |
| UserVessel | (GEU-1005-6, 99GEMS, 'User Vessel Anatomy') |
| Pre-Stent | (GEU-1004-71, 99GEMS, 'Pre-Stent') |
| Stent | (A-25500, SRT, 'Stent') |
| Post-Stent | (GEU-1004-72, 99GEMS, 'Post-Stent') |

### 16.1.8 TID 300 Measurement (extended for Vascular)

**TABLE 16-7 GEU APPLICATIONS AND EXTENSIONS**

| | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | NUM | $Measurement | 1 | M | | Units = $Units |
| 2 | > | HAS CONCEPT MOD | TEXT | EV(GEU-1005-5, 99GEMS, Measurement Label) | 1 | UC | When Measurement is created by user (User Defined) | Measurement Label created by User ($Label) |
| 3 | > | HAS CONCEPT MOD | CODE | EV(GEU-1005-5, 99GEMS, Measurement Label) | 1 | UC | Only for AP or Trans | - AP (122675, Anterior-Posterior, DCM,) <br><br> - Trans (G-A117. Transverse, SRT) |
| 4 | > | HAS CONCEPT MOD | CODE | EV(G-A1F8, SRT, 'Topographical modifier') | 1 | U | | See Table 16-10 GE Ultrasound Vessel Location |
| 5 | > | HAS CONCEPT MOD | CODE | EV(121401, DCM, 'Derivation') | 1 | U | | $Derivation |
| 6 | > | HAS PROPERTIES | CODE | EV(121404, DCM, 'Selection Status') | 1 | U | | $Selection Status |

### 16.1.9 GE Ultrasound Modes

**TABLE 16-8 GE ULTRASOUND MODES**

| GE Ultrasound Modes | Code Value |
|---|---|
| 2D | (G-03A2,SRT, "2D mode") |
| CF | (R-409E2, SRT, "Doppler Color Flow") |
| PW | (R-409E4, SRT, "Doppler Pulsed") |
| MM | (G-0394, SRT, "M mode") |
| CW | (R-409E3, SRT, "Doppler Continuous Wave") |

### 16.1.10 GE Ultrasound Sidedness and Vessel Location

**TABLE 16-9 GE ULTRASOUND SIDEDNESS**

| Side | Code Value |
|---|---|
| Rt | (G-A100, SRT, "Right") |
| Lt | (G-A101, SRT, "Left") |

Note (*) when there is no Sidedness or Locations, the SR nodes are not populated

**TABLE 16-10 GE ULTRASOUND VESSEL LOCATION**

| Vessel Location | Code Value |
|---|---|
| Prox | (G-A118, SRT, "Proximal") |
| Mid | (G-A188,SRT, "Mid-longitudinal") |
| Dist | (G-A119, SRT, "Distal") |

### 16.1.11 SR Mapping Table for Vascular Base Measurement Concept

### 16.1.11.1 PWD-Mode MEASUREMENTS

**TABLE 16-11 PWD-MODE MEASUREMENTS**

| GEU Measurement Parameter | Standard Measurement Concept Name |
|---|---|
| PS, Ps_velocitySD, Ps_velocityDS | (11726-7, LN, 'Peak Systolic Velocity') |
| ED, Ved | (11653-3, LN, 'End Diastolic Velocity') |
| MD, Md_velocitySD, Md_velocityDS | (11665-7, LN, 'Minimum Diastolic Velocity') |
| Tamax, TamaxM | (11692-1, LN, 'Time averaged peak velocity') |
| PI | (12008-9, LN, 'Pulsatility Index') |
| RI, PI/RI | (12023-8, LN, 'Resistivity Index') |
| SD Ratio, Ratio S/D | (12144-2, LN, 'Systolic to Diastolic Velocity Ratio') |
| DS Ratio, Ratio D/S | (122218, DCM, 'Diastolic to Systolic Velocity Ratio') |
| Accel | (20167-3, LN, 'Acceleration Index') |
| AT | (20168-1, LN, 'Acceleration Time') |
| TAMEAN | (20352-1, LN, 'Time averaged mean velocity') |
| VOLFLOW | (33878-0, LN, 'Volume flow') |
| ICACCA Ratio (PS) | (33868-1, LN, 'ICA/CCA velocity') |
| HR, HR Cycle | (8867-4, LN, 'Heart Rate') |
| RAR | (33869-9, LN, 'Renal Artery/Aorta velocity Ratio') |

| | |
|---|---|
| AC | (GEU-1004-9, 99GEMS, 'Angular Correction') |
| IVRatio | (GEU-1004-11, 99GEMS, 'Intra Vessel Ratio') |
| PS/Hz | (GEU-1004-13, 99GEMS, 'Peak Systolic Frequency') |
| ED/Hz | (GEU-1004-14, 99GEMS, 'End Diastolic Frequency') |
| PV/Hz | (GEU-1004-15, 99GEMS, 'Peak Velocity Frequency') |
| MD/Hz | (GEU-1004-16, 99GEMS, 'Minimum Diastolic Frequency') |
| Vmax | (GEU-1004-24, 99GEMS, 'Maximum Velocity') |
| Vmin | (GEU-1004-25, 99GEMS, 'Minimum Velocity') |
| MaxPG | (GEU-1004-26, 99GEMS, 'Maximum Pressure Gradient') |
| MeanPG | (GEU-1004-27, 99GEMS, 'Average Pressure Gradient') |
| GreatSaphAccess | (GEU-1004-73, 99GEMS, 'Great Saphenous Vein of Accessory') |

### 16.1.11.2  Vascular B- MODE Measurements

#### TABLE 16-12 VASCULAR B-MODE MEASUREMENTS

| GEU Measurement Parameter | Standard Measurement Concept Name |
|---|---|
| DiamStenD1, DiamStenD2 | (G-0364, SRT, 'Vessel Lumen Diameter') |
| AreaStenA1, AreaStenA2 | (G-0366, SRT, 'Vessel Lumen Cross-Sectional Area') |
| StenosisD, Stenosis | (R-101BB , SRT, 'Lumen Diameter Stenosis') |
| StenosisA | (R-101BA , SRT, 'Lumen Area Stenosis') |
| AP | (M-02550, SRT, 'Diameter') with Measurement Labels    (122675, DCM, 'Anterior-Posterior') |
| Trans | (M-02550, SRT, 'Diameter') with Measurement Labels (G-A117, SRT, 'Transverse') |
| Angle | (GEU-1004-18, 99GEMS, 'Angle') |
| Ellipse | (125226, DCM, 'Single Plane Ellipse') |
| Area, AreaRatioA1, AreaRatioA2 | (121056, DCM, 'Area Outline') |
| SplenicJPNL | (GEU-1004-56, 99GEMS, 'Splenic D1') |
| SplenicJPNH | (GEU-1004-57, 99GEMS, 'Splenic D2') |
| SplenicIndexJPN | (GEU-1004-58, 99GEMS, 'Splenic Index-JP') |
| IMT Ant Avg | (GEU-1005-20, 99GEMS, 'IMT Anterior Average') |
| IMT Ant Max | (GEU-1005-21, 99GEMS, 'IMT Anterior Max') |
| IMT Ant Min | (GEU-1005-22, 99GEMS, 'IMT Anterior Min') |
| IMT Ant SD | (GEU-1005-23, 99GEMS, 'IMT Anterior SD') |
| IMT Ant nMeas | (GEU-1005-24, 99GEMS, 'IMT Anterior nMeas') |
| IMT Ant Dist | (GEU-1005-25, 99GEMS, 'IMT Anterior Dist') |
| IMT Post Avg | (GEU-1005-26, 99GEMS, 'IMT Posterior Average') |
| IMT Post Max | (GEU-1005-27, 99GEMS, 'IMT Posterior Max') |
| IMT Post Min | (GEU-1005-28, 99GEMS, 'IMT Posterior Min') |
| IMT Post SD | (GEU-1005-29, 99GEMS, 'IMT Posterior SD') |
| IMT Post nMeas | (GEU-1005-30, 99GEMS, 'IMT Posterior nMeas') |
| IMT Post Dist | (GEU-1005-31, 99GEMS, 'IMT Posterior Dist') |
| DiamRatio | (GEU-1004-20, 99GEMS, 'Diameter Ratio') |
| VFDiam | (GEU-1004-49, 99GEMS, 'Volume Flow Diameter') |
| VolD1 | (GEU-1004-52, 99GEMS, 'Volume Diameter 1') |
| VolD2 | (GEU-1004-53, 99GEMS, 'Volume Diameter 2') |
| VolD3 | (GEU-1004-54, 99GEMS, 'Volume Diameter 3') |
| ABDiamRatio | (GEU-1004-55, 99GEMS, 'A/B Diameter Ratio') |

| ABAreaRatio | (GEU-1004-66, 99GEMS, 'A/B Area Ratio') |
|---|---|

### 16.1.11.3 Abdomen B- MODE Measurements

**TABLE 16-13 ABDOMEN B-MODE MEASUREMENTS**

| GEU Measurement Parameter | Standard Measurement Concept Name |
|---|---|
| SpleenDistL, SpleenDistH, SpleenDistW, SpeenVolume | Length, SRT,G-A22A), (Height, DCM, 121207), (Width, SRT, G-A220), (Volume, SRT, G-D705)<br><br>inside (T-C3000, SRT, Spleen) container |
| RenalDistL, RenalDistH, RenalDistW, RenalVolume | (Length, SRT,G-A22A), (Height, DCM, 121207), (Width, SRT, G-A220), (Volume, SRT, G-D705)<br><br>inside (T-71000, SRT, Kidney) container |
| BladderL, BladderH, BladderW, BladderVolume | (Length, SRT,G-A22A), (Height, DCM, 121207), (Width, SRT, G-A220), (Volume, SRT, G-D705)<br><br>Inside (T-74000, SRT, Bladder) container |
| LiverL, LiverW | (Length, SRT,G-A22A), (Width, SRT, G-A220)<br><br>Inside (T-62002, SRT, Liver) container |
| CBDporta, CBDpanc | (GEU-1004-67, 99GEMS, CBD Porta), (GEU-1004-68, 99GEMS, CBD Panc) (Length, SRT,G-A22A)<br><br>inside (T-60610, SRT, Bile Duct) |
| CBD | (Length, SRT,G-A22A)<br><br>inside (T-60610, SRT, Bile Duct) |
| PancHead. PancBody, PancDuct | (GEU-1004-59, 99GEMS, Pancreas Head), (GEU-1004-60, 99GEMS, Pancreas Body), (GEU-1004-61, 99GEMS, Pancreas Duct) |
| AAAL | (Length, SRT,G-A22A) inside (R-002CD, SRT, Aneurysm of Aortic Root) |
| GBW | (GEU-1004-38,99GEMS, Gall Bladder Wall) |
| AoProxAP, AoProxTrans | AP = (Diameter,SRT, M-02550), with Measurement Label (Anterior-Posterior, DCM, 122675),<br><br>Trans = (Diameter,SRT, M-02550), with Measurement Label (Transverse , SRT, G-A117)<br><br>inside (T-42000, SRT, Aorta) with (Proximal, SRT,G-A118) as Topographical Modifier |
| AoMidAP, AoMidTrans | AP = (Diameter,SRT, M-02550), with Measurement Label (Anterior-Posterior, DCM, 122675),<br><br>Trans = (Diameter,SRT, M-02550), with Measurement Label (Transverse , SRT, G-A117)<br><br>inside (T-42000, SRT, Aorta) with (Mid-longitudinal, SRT,G-A188) as Topographical Modifier |
| AoDistAP, AoDistTrans | AP = (Diameter,SRT, M-02550), with Measurement Label (Anterior-Posterior, DCM, 122675),<br><br>Trans = (Diameter,SRT, M-02550), with Measurement Label (Transverse , SRT, G-A117)<br><br>inside (T-42000, SRT, Aorta) with (Distal, SRT,G-A119) as Topographical Modifier |
| IliacAP, IliacTrans | AP = (Diameter,SRT, M-02550), with Measurement Label (Anterior-Posterior, DCM, 122675),<br><br>Trans = (Diameter,SRT, M-02550), with Measurement Label (Transverse, SRT, G-A117) |

| | | | | inside (T-46710, SRT, Common Iliac Artery) | | | |
|---|---|---|---|---|---|---|---|

### 16.1.12 TID G301 GE Ultrasound User Defined Measurement - Type: Extensible

The General Ultrasound User Defined Measurement Template provides a CONTAINER with a structure for reporting user-defined measurements and calculations.

The difference between this from TID 5103, TID 300 or 1414 for general measurement is the template uses labels that specified by users at configuration time rather assigning specific codes to the individual measurements.

Note: In practice, to assign specific codes to user defined measurements are impractical and cumber-some since the system/organization has to maintain database/map of codes and labels with public/private code designator schemes.

**TABLE 16-14 TID G301**

| | NL | Relation with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | EV (121070, DCM, 'Findings') | 1 | M | | |
| 2 | > | HAS CONCEPT MOD | CODE | EV (G-C171, SRT, 'Laterality') | 1 | MC | IFF anatomy has laterality | DCID (244) Laterality |
| 3 | > | HAS CONCEPT MOD | CODE | EV (G-0373, SRT, 'Image Mode') | 1 | M | | See Table 16-8 GE Ultrasound Modes |
| 4 | > | HAS CONCEPT MOD | CONTAINER | EV (GEU-1005-6, 99GEMS, 'User Vessel Anatomy') or (GEU-1005-3, 99GEMS, 'General Anatomy') | 1 | MC | IFF there exists user defined measurements | Note: User Vessel Anatomy mainly used to defined vessels and using Insert Study/Vessel template.<br><br>General Anatomy mainly used in PWD and B-Mode and when user added individual folders and measurements. |
| 5 | >> | HAS CONCEPT MOD | TEXT | DT (GEU-1005-7, 99GEMS, 'Anatomy Label') | 1 | MC | IFF The container uses Finding as Concept Name | Labels from user which defined at configuration |
| 6 | >> | HAS CONCEPT MOD | CODE | EV (G-A1F8, SRT, Topographical modifier) | 1 | MC | IFF topographical defined | See Table 16-10 GE Ultrasound Vessel Location |
| 7 | >> | CONTAIN | INCLUDE | DTID (300) Measurement – see section: 16.1.8 | 1-n | M | | $Measurement =<br><br>When 'Add Folder' insert study measurements by pre-populated study – Please refer to section 16.1.6. Vascular Ultrasound Measurement Group.<br><br>When individually added 'Add Measurement' please refer to DCID (G5001) GE Defined Measurements since |

| | | | | | | | new measurement codes are determined by its measurement units<br><br>$Units = DCID (82) Units of Measurement<br><br>$Derivation = DCID (3627) Measurement Type<br><br>$Selection = DCID (224) Selection Method<br><br>$Label = Measurement Label created by User |
|---|---|---|---|---|---|---|---|

### 16.1.13  Context ID G5001 GE Ultrasound Defined Measurement List

**TABLE 16-15 CID G5001**

| distance-cm | cm | (121206, DCM, "Distance") |
|---|---|---|
| distance-mm | mm | (121206, DCM, "Distance") |
| volume-cm3 | cm3 | (G-D705, SRT, "Volume") |
| volume-mm3 | mm3 | (G-D705, SRT, "Volume") |
| frequency | kHz | (R-407E7, SRT, "Frequency") |
| frequency-h | Hz | (R-407E7, SRT, "Frequency") |
| area-cm2 | cm2 | (G-A166, SRT, "Area") |
| area-mm2 | mm2 | (G-A166, SRT, "Area") |
| time-s | s | (G-D7FF, SRT, "Time") |
| time-ms | ms | (G-D7FF, SRT, "Time") |
| time-min | min | (G-D7FF, SRT, "Time") |
| volume-flow | ml/min | (33878-0, LN, "Volume Flow") |
| acceleration-index | cm/s2 | (20167-3, LN, "Acceleration Index") |
| calculated-value | no units | (GEU-1004-7, 99GEMS, "Calculated Value") |
| angle | deg | (GEU-1004-18, 99GEMS, "Angle") |
| velocity | cm/s2 | ((G-D784, SRT, "Velocity") |
| volume-gram | g | (G-D705, SRT, "Volume") |
| volume-ml | ml | (G-D705, SRT, "Volume") |
| velocity | cm/s | (G-D784, SRT, "Velocity") |
| weekday | WeekDay | (GEU-1004-6, 99GEMS, "WeekDay") |
| date | Date | (GEU-1004-5, 99GEMS, "Date") |
| percent | % | (GEU-1004-4, 99GEMS, "Percent") |
| diameter-cm-m2 | cm/m2 | (GEU-1004-39, 99GEMS, "Diameter") |
| volume-index | ml/m2 | (GEU-1004-40, 99GEMS, "Volume Index") |
| volume-flow-ml | ml/s | (33878-0, LN, "Volume Flow") |
| volume-flow-l | l/s | (33878-0, LN, "Volume Flow") |
| volume-flow-l-min | l/minm2 | (33878-0, LN, "Volume Flow") |
| mass-flux | g/m2 | (GEU-1004-42, 99GEMS, "Mass Flux") |

## 16.2  ECHOCARDIOGRAPHY PROCEDURE REPORT

This section describes the contents of the Echocardiography Procedure Report (TID 5200) SR.

### 16.2.1  Echocardiography Structure
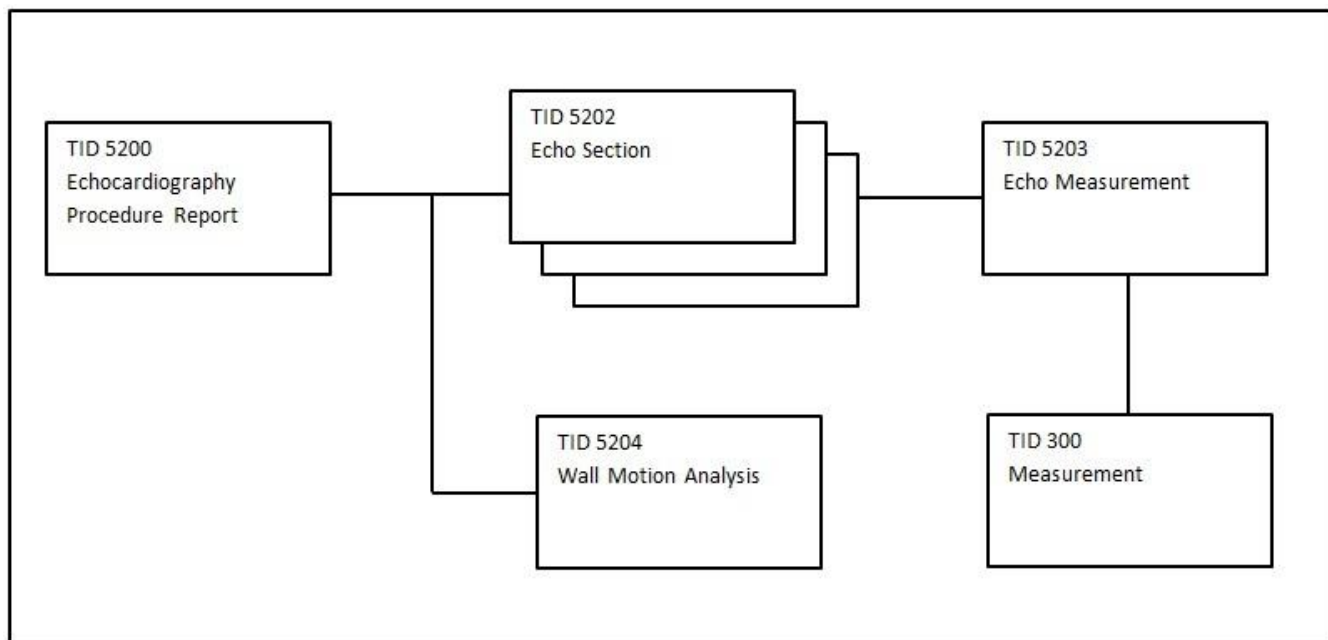


**TID 5200 – Echocardiography Procedure Report**

| | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | EV (125200, DCM, "Adult Echocardiography Procedure Report") | 1 | M | | |
| 2 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (T-32600, SRT, "Left Ventricle") |
| 3 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (T-32500, SRT, "Right Ventricle") |
| 4 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (T-32300, SRT, "Left Atrium") |
| 5 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (T-32200, SRT, "Right Atrium") |
| 6 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (T-35400, SRT, "Aortic Valve") |
| 7 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (T-35300, SRT, "Mitral Valve") |
| 8 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (T-35200, SRT, "Pulmonic Valve") |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 9 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (T-35100, SRT, "Tricuspid Valve") |
| 10 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (T-42000, SRT, "Aorta") |
| 11 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (T-44000, SRT, "Pulmonary artery") |
| 12 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (T-48600, SRT, "Vena Cava" |
| 13 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (T-48581, SRT, "Pulmonary Venous Structure" |
| 14 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (P5-30031, SRT, "Cardiac Shunt Study") |
| 15 | | CONTAINS | INCLUDE | DTID (5202) Echo Section | 1 | U | | $SectionSubject = EV (D4-30000, SRT, "Congenital Anomaly of Cardiovascular System") |
| 16 | | CONTAINS | INCLUDE | DTID (5204) Wall Motion Analysis | 1-n | U | | $Procedure = DT (P5-B3121, SRT, "Echocardiography for Determining Ventricular Contraction") |

### 16.2.2 Aorta

**TABLE 16-16 AORTA**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| 2D/Ao Diam SVals | (GEU-1005-45, 99GEMS, "Ao Diam SVals") | |
| 2D/Ao Diam STub | (GEU-1005-46, 99GEMS, "Ao Diam STub") | |
| MM/LAAo/Ao Root Diam | (18015-8, LN, "Aortic Root Diameter") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| 2D/Ao Root Diam | (18015-8, LN, "Aortic Root Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/Ao Asc Diam | (18012-5, LN, "Ascending Aortic Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/Ao st junct | (GEU-1005-40, 99GEMS, "Ao st junct") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/Ao Arch Diam | (18011-7, LN, "Aortic Arch Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/Ao Desc Diam | (18013-3, LN, "Descending Aortic Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/Ao Isthmus | (18014-1, LN, "Aortic Isthmus Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/Ao st junct/Ao | (GEU-1005-41, 99GEMS, "Ao st junct/Ao") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LAX/Trans AoD diastole | (18015-8, LN, "Aortic Root Diameter") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |

| | | |
|---|---|---|
| 2D/LAX/Trans AoD systole | (18015-8, LN, "Aortic Root Diameter") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/SAX/Trans AoD diastole | (18015-8, LN, "Aortic Root Diameter") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/SAX/Trans AoD systole | (18015-8, LN, "Aortic Root Diameter") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| MM/Ao Root Diam | (18015-8, LN, "Aortic Root Diameter") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| Asc Ao Vmax | (11726-7, LN, "Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (T-42100, SRT, "Ascending aorta") |
| Asc Ao maxPG | (20247-3, LN, "Peak Gradient") | (G-C0E3, SRT, "Finding Site")= (T-42100, SRT, "Ascending aorta") |
| Dsc Ao Vmax | (11726-7, LN, "Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (T-42400, SRT, "Descending aorta") |
| Dsc Ao maxPG | (20247-3, LN, "Peak Gradient") | (G-C0E3, SRT, "Finding Site")= (T-42400, SRT, "Descending aorta") |

### 16.2.3 Aortic Valve

**TABLE 16-17 AORTIC VALVE**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| 2D/AVA/AV Diam | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/AVA/AV Area | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| AV Dec Time | (20217-6, LN, "Deceleration Time") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| AV Dec Slope | (20216-8, LN, "Deceleration Slope") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| PISA/AR/RF | (G-0390, SRT, "Regurgitant Fraction") | (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| CFM/AR Signal Area | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow")<br>(G-0373, SRT, "Image Mode")= (R-409E2, SRT, "Doppler Color Flow") |
| MM/AV Diam | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| 2D/AV Diam | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/AV Cusp | (17996-0, LN, "Aortic Valve Cusp Separation") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LAX/Trans AVA diastole | (G-038E, SRT, "Cardiovascular Orifice Area") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LAX/Trans AVA systole | (G-038E, SRT, "Cardiovascular Orifice Area") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/SAX/Trans AVA diastole | (G-038E, SRT, "Cardiovascular Orifice Area") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/SAX/Trans AVA systole | (G-038E, SRT, "Cardiovascular Orifice Area") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |

| | | |
|---|---|---|
| 2D/AVA Planimetry | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125220, DCM, "Planimetry") |
| 2D/AV Area | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| MM/AV Cusp | (17996-0, LN, "Aortic Valve Cusp Separation") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| AV Vmax | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| AV Vmax P | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| AV maxPG | (20247-3, LN, "Peak Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| AV Vmean | (20352-1, LN, "Mean Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| AV meanPG | (20256-4, LN, "Mean Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| AV Acc Time | (20168-1, LN, "Acceleration Time") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| AV VTI | (20354-7, LN, "Velocity Time Integral") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| AVA (VTI) | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-C036, SRT, "Measurement Method")= (125215, DCM, "Continuity Equation by Velocity Time Integral") |
| AVA (Vmax) | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-C036, SRT, "Measurement Method")= (125214, DCM, "Continuity Equation by Peak Velocity") |
| AVA (Vmax)2 | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-C036, SRT, "Measurement Method")= (125214, DCM, "Continuity Equation by Peak Velocity") |
| AVA (Vmax)P | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-C036, SRT, "Measurement Method")= (125214, DCM, "Continuity Equation by Peak Velocity") |
| AVA (Vmax)P2 | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-C036, SRT, "Measurement Method")= (125214, DCM, "Continuity Equation by Peak Velocity") |
| AV Env.Ti | (GEU-1005-34, 99GEMS, "AV Env.Ti") | |
| AV SV | (F-32120, SRT, "Stroke Volume") | (G-C0E3, SRT, "Finding Site")= (T-42000, SRT, "Aorta") |
| AV HR | (8867-4, LN, "Heart rate") | |
| AV SI | (F-00078, SRT, "Stroke Index") | (G-C0E3, SRT, "Finding Site")= (T-42000, SRT, "Aorta") |
| AV CO | (F-32100, SRT, "Cardiac Output") | (G-C0E3, SRT, "Finding Site")= (T-42000, SRT, "Aorta") |
| AV CI | (F-32110, SRT, "Cardiac Index") | (G-C0E3, SRT, "Finding Site")= (T-42000, SRT, "Aorta") |
| AVA/AV Vmax | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| AVA/AV Vmax P | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |

| | | |
|---|---|---|
| AVA/AV maxPG | (20247-3, LN, "Peak Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| AVA/AV Vmean | (20352-1, LN, "Mean Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| AVA/AV meanPG | (20256-4, LN, "Mean Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| AVA/AV VTI | (20354-7, LN, "Velocity Time Integral") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| AVA/AVA (VTI) | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-C036, SRT, "Measurement Method")= (125215, DCM, "Continuity Equation by Velocity Time Integral") |
| AVA/AVA (Vmax) | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-C036, SRT, "Measurement Method")= (125214, DCM, "Continuity Equation by Peak Velocity") |
| AVA/AVA (Vmax)2 | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-C036, SRT, "Measurement Method")= (125214, DCM, "Continuity Equation by Peak Velocity") |
| AVA/AVA (Vmax)P | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-C036, SRT, "Measurement Method")= (125214, DCM, "Continuity Equation by Peak Velocity") |
| AVA/AVA (Vmax)P2 | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-C036, SRT, "Measurement Method")= (125214, DCM, "Continuity Equation by Peak Velocity") |
| AVA/AV Env.Ti | (GEU-1005-35, 99GEMS, "AVA/AV Env.Ti") | |
| AVA/AV SV | (F-32120, SRT, "Stroke Volume") | (G-C0E3, SRT, "Finding Site")= (T-42000, SRT, "Aorta") |
| AVA/AV HR | (8867-4, LN, "Heart rate") | |
| AVA/AV SI | (F-00078, SRT, "Stroke Index") | (G-C0E3, SRT, "Finding Site")= (T-42000, SRT, "Aorta") |
| AVA/AV CO | (F-32100, SRT, "Cardiac Output") | (G-C0E3, SRT, "Finding Site")= (T-42000, SRT, "Aorta") |
| AVA/AV CI | (F-32110, SRT, "Cardiac Index") | (G-C0E3, SRT, "Finding Site")= (T-42000, SRT, "Aorta") |
| AV Acc Slope | (20174-9, LN, "Aortic Valve Acceleration Slope") | |
| AVET | (18041-4, LN, "Aortic Valve Ejection Time") | |
| AV Acc Time/ET Ratio | (G-0382, SRT, "Ratio of Aortic Valve Acceleration Time to Ejection Time") | |
| AV dp/dt | (GEU-1005-156, 99GEMS, "AV dp/dt") | |
| AV Time To Peak | (59121-4, LN, "Time to Peak by US") | |
| AR PHT | (20280-4, LN, "Pressure Half-Time") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| AR Dec Time | (20217-6, LN, "Deceleration Time") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| AR Dec Slope | (20216-8, LN, "Deceleration Slope") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| AR Vmax | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| AR maxPG | (20247-3, LN, "Peak Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| ARend Vmax | (11653-3, LN, "End Diastolic Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |

| | | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow")<br>(R-4089A, SRT, "Cardiac Cycle Point")= (F-32011, SRT, "End Diastole") |
|---|---|---|
| ARend maxPG | (20247-3, LN, "Peak Gradient") | |
| AR Vmean | (20352-1, LN, "Mean Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| AR meanPG | (20256-4, LN, "Mean Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| AR Env.Ti | (59108-1, LN, "Envelope Duration") | |
| AR VTI | (20354-7, LN, "Velocity Time Integral") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| AR dp/dt | (GEU-1005-155, 99GEMS, "AR dp/dt") | |
| AP VTI | (20354-7, LN, "Velocity Time Integral") | |
| AP Area | (GEU-1005-131, 99GEMS, "AP Area") | |
| PISA/AR/Flow | (34141-2, LN, "Peak Instantaneous Flow Rate") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow")<br>(G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/AR/Vmax | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow")<br>(G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/AR/VTI | (20354-7, LN, "Velocity Time Integral") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow")<br>(G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/AR/ERO | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow")<br>(G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/AR/RV | (33878-0, LN, "Volume Flow") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow")<br>(G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| AR HR | (8867-4, LN, "Heart rate") | (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") |

### 16.2.4  Congenital Anomaly of Cardiovascular System

**TABLE 16-18 CONGENITAL ANOMALY OF CARDIOVASCULAR SYSTEM**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| 2D/PDA Diam | (GEU-1005-81, 99GEMS, "PDA Diam") | (G-C0E3, SRT, "Finding Site")= (D4-32012,SRT,"Patent ductus arteriosus")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/ASD Diam | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C0E3, SRT, "Finding Site")= (D4-31220, SRT, "Atrial Septal Defect") |
| 2D/VSD Diam | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C0E3, SRT, "Finding Site")= (D4-31150, SRT, "Ventricular Septal Defect") |
| 2D/PFO Diam | (GEU-1005-82, 99GEMS, "PFO Diam") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C0E3, SRT, "Finding Site")= (D4-31012,SRT,"Patent foramen ovale") |
| 2D/Pre Ductal | (GEU-1005-84, 99GEMS, "Pre Ductal") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") See *1 |
| 2D/Post Ductal | (GEU-1005-83, 99GEMS, "Post Ductal") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") See *2 |

| | | |
|---|---|---|
| VSD Vmax | (11726-7, LN, "Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (D4-31150, SRT, "Ventricular Septal Defect") |
| VSD maxPG | (20247-3, LN, "Peak Gradient") | (G-C0E3, SRT, "Finding Site")= (D4-31150, SRT, "Ventricular Septal Defect") |
| ASD Vmax | (11726-7, LN, "Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (D4-31220, SRT, "Atrial Septal Defect") |
| ASD maxPG | (20247-3, LN, "Peak Gradient") | (G-C0E3, SRT, "Finding Site")= (D4-31220, SRT, "Atrial Septal Defect") |
| PDA Systolic | (GEU-1005-100, 99GEMS, "PDA Systolic") | (G-C0E3, SRT, "Finding Site")= (D4-32012,SRT,"Patent ductus arteriosus") |
| PDA Systolic PG | (GEU-1005-101, 99GEMS, "PDA Systolic PG") | (G-C0E3, SRT, "Finding Site")= (D4-32012,SRT,"Patent ductus arteriosus") |
| PDA Diastolic | (GEU-1005-102, 99GEMS, "PDA Diastolic") | (G-C0E3, SRT, "Finding Site")= (D4-32012,SRT,"Patent ductus arteriosus") |
| PDA Diastolic PG | (GEU-1005-103, 99GEMS, "PDA Diastolic PG") | (G-C0E3, SRT, "Finding Site")= (D4-32012,SRT,"Patent ductus arteriosus") |
| Coarctation/Pre-Ductal | (GEU-1005-98, 99GEMS, "Coarctation/Pre-Ductal") | (G-C0E3, SRT, "Finding Site")= (D4-32014,SRT,"Coarctation of aorta") |
| Coarctation/Pre-Ductal PG | (GEU-1005-99, 99GEMS, "Coarctation/Pre-Ductal PG") | (G-C0E3, SRT, "Finding Site")= (D4-32014,SRT,"Coarctation of aorta") |
| Coarctation/Post-Ductal | (GEU-1005-96, 99GEMS, "Coarctation/Post-Ductal") | (G-C0E3, SRT, "Finding Site")= (D4-32014,SRT,"Coarctation of aorta") |
| Coarctation/Post-Ductal PG | (GEU-1005-97, 99GEMS, "Coarctation/Post-Ductal PG") | (G-C0E3, SRT, "Finding Site")= (D4-32014,SRT,"Coarctation of aorta") |

*1: Pre Ductal means the narrowing is proximal to the ductus arteriosus.

*2: Post Ductal means the narrowing is distal to the insertion of the ductus arteriosus.

### 16.2.5 Cardiac Shunt Study

**TABLE 16-19 CARDIAC SHUNT STUDY**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| Systemic HR | (GEU-1005-152, 99GEMS, "Systemic HR") | Left Ventricular HR |
| Systemic SV | (GEU-1005-95, 99GEMS, "Systemic SV") | Left Ventricular SV |
| Systemic CO | (GEU-1005-94, 99GEMS, "Systemic CO") | Left Ventricular CO |
| Pulmonic HR | (GEU-1005-151, 99GEMS, "Pulmonic HR") | Right Ventricular HR |
| Pulmonic SV | (GEU-1005-93, 99GEMS, "Pulmonic SV") | Right Ventricular SV |
| Pulmonic CO | (GEU-1005-92, 99GEMS, "Pulmonic CO") | Right Ventricular CO |
| 2D/Pulmonic Diam | (GEU-1005-150, 99GEMS, "Pulmonic Diam") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/Systemic Diam | (GEU-1005-149, 99GEMS, "Systemic Diam") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| Qp/Qs | (29462-9, LN, "Pulmonary-to-Systemic Shunt Flow Ratio") | |
| Systemic Vmax | (GEU-1005-120, 99GEMS, "Systemic Vmax") | Left Ventricular Vmax |
| Systemic Vmean | (GEU-1005-121, 99GEMS, "Systemic Vmean") | Left Ventricular Vmean |
| Systemic maxPG | (GEU-1005-117, 99GEMS, "Systemic maxPG") | Left Ventricular maxPG |
| Systemic meanPG | (GEU-1005-118, 99GEMS, "Systemic meanPG") | Left Ventricular meanPG |
| Systemic Env.Ti | (GEU-1005-116, 99GEMS, "Systemic Env.Ti") | Left Ventricular Env,Ti |
| Systemic VTI | (GEU-1005-44, 99GEMS, "Systemic VTI") | Left Ventricular VTI |
| Pulmonic Vmax | (GEU-1005-112, 99GEMS, "Pulmonic Vmax") | Right Ventricular Vmax |
| Pulmonic Vmean | (GEU-1005-113, 99GEMS, "Pulmonic Vmean") | Right Ventricular Vmean |
| Pulmonic maxPG | (GEU-1005-110, 99GEMS, "Pulmonic maxPG") | Right Ventricular maxPG |
| Pulmonic meanPG | (GEU-1005-111, 99GEMS, "Pulmonic meanPG") | Right Ventricular meanPG |

| | (GEU-1005-109, 99GEMS, "Pulmonic Env.Ti") | |
|---|---|---|
| Pulmonic Env.Ti | | Right Ventricular Env,Ti |
| Pulmonic VTI | (GEU-1005-43, 99GEMS, "Pulmonic VTI") | Right Ventricular VTI |

### 16.2.6  Left Atrium

**TABLE 16-20 LEFT ATRIUM**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| 2D/Ao/LA | (17985-3, LN, "Left Atrium to Aortic Root Ratio") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LA D1 | (GEU-1005-59", 99GEMS, "LA D1") | |
| 2D/LA D2 | (GEU-1005-60, 99GEMS, "LA D2") | |
| 2D/LA D3 | (GEU-1005-61, 99GEMS, "LA D3") | |
| 2D/LA Volume | (GEU-1005-62", 99GEMS, "LA Volume") | |
| MM/Ao/LA | (17985-3, LN, "Left Atrium to Aortic Root Ratio") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LA | (29469-4, LN, "Left Atrium Antero-posterior Systolic Dimension") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LAAo/LA | (29469-4, LN, "Left Atrium Antero-posterior Systolic Dimension") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LAAo/LA/Ao | (17985-3, LN, "Left Atrium to Aortic Root Ratio") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LAAo/Ao/LA | (GEU-1008-01, 99GEMS, "Aortic Root to Left Atrium Ratio") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| SD/LAappendix Vmax | (11726-7, LN, "Peak Velocity") | |
| 2D/LA Volume Index | (GEU-1005-63, 99GEMS, "LA Volume Index") | |
| 2D/LA Major | (G-A193, SRT, "Major Axis") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LA Minor | (G-A194, SRT, "Minor Axis") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LA | (29469-4, LN, "Left Atrium Antero-posterior Systolic Dimension") | |
| 2D/LA/Ao | (17985-3, LN, "Left Atrium to Aortic Root Ratio") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LAA diastole | (GEU-1005-69, 99GEMS, "LAA diastole") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LAA systole | (17977-0, LN, "Left Atrium Systolic Area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LA Area | (G-A166, SRT, "Area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| LALd(A4C) | (29467-8, LN, "Left Atrium Superior-Inferior Dimension, 4-chamber view") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole") |
| LAAd(A4C) | (17977-0, LN, "Left Atrium Area A4C view") | |
| LAEDV(A-L A4C) | (GEU-1005-54, 99GEMS, "LAEDV(A-L A4C)") | |
| LAESV(A-L A4C) | (G-0383, SRT, "Left Atrium Systolic Volume") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| LAEDV(MOD A4C) | (GEU-1005-56, 99GEMS, "LAEDV(MOD A4C)") | |
| LALs(A4C) | (29467-8, LN, "Left Atrium Superior-Inferior Dimension, 4-chamber view") | |
| LAAs(A4C) | (GEU-1005-51, 99GEMS, "LAAs(A4C)") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber") |

| | | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber") |
|---|---|---|
| LAESV(MOD A4C) | (G-0383, SRT, "Left Atrium Systolic Volume") | (G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| LALd(A2C) | (GEU-1005-48, 99GEMS, "LALd(A2C)") | |
| LAAd(A2C) | (GEU-1005-47, 99GEMS, "LAAd(A2C)") | |
| LAEDV(A-L A2C) | (GEU-1005-53, 99GEMS, "LAEDV(A-L A2C)") | |
| LAEDV(MOD A2C) | (GEU-1005-55, 99GEMS, "LAEDV(MOD A2C)") | |
| LALs(A2C) | (GEU-1005-52, 99GEMS, "LALs(A2C)") | |
| LAAs(A2C) | (GEU-1005-50, 99GEMS, "LAAs(A2C)") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber") |
| LAESV(A-L A2C) | (G-0383, SRT, "Left Atrium Systolic Volume") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| LAESV(MOD A2C) | (G-0383, SRT, "Left Atrium Systolic Volume") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| MM/LA/Ao | (17985-3, LN, "Left Atrium to Aortic Root Ratio") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| 2D/LAEDV(A-L) | (122407, DCM, "Left Atrial End Diastolic Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125204, DCM, "Area-Length Biplane") |
| 2D/LAESV(A-L) | (G-0383, SRT, "Left Atrium Systolic Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125204, DCM, "Area-Length Biplane") |

### 16.2.7 Left Ventricle

**TABLE 16-21 LEFT VENTRICLE**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| CO(A-L) | (F-32100, SRT, "Cardiac Output") | (G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| CO(A-L A4C)/AutoHR | (F-32100, SRT, "Cardiac Output") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| CI(A-L A4C)/AutoHR | (F-32110, SRT, "Cardiac Index") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| CO(MOD A4C)/AutoHR | (F-32100, SRT, "Cardiac Output") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| CI(MOD A4C)/AutoHR | (F-32110, SRT, "Cardiac Index") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| CO(A-L A2C)/AutoHR | (F-32100, SRT, "Cardiac Output") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |

| | | |
|---|---|---|
| CI(A-L A2C)/AutoHR | (F-32110, SRT, "Cardiac Index") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| CO(MOD A2C)/AutoHR | (F-32100, SRT, "Cardiac Output") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| CI(MOD A2C)/AutoHR | (F-32110, SRT, "Cardiac Index") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| CO(A-L LAX)/AutoHR | (F-32100, SRT, "Cardiac Output") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| CI(A-L LAX)/AutoHR | (F-32110, SRT, "Cardiac Index") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| CO(MOD LAX)/AutoHR | (F-32100, SRT, "Cardiac Output") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| CI(MOD LAX)/AutoHR | (F-32110, SRT, "Cardiac Index") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| LVEDV(MOD BP)_03 | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| LVESV(MOD BP)_03 | (18148-7, LN, "Left Ventricular End Systolic Volume") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| EF(Biplane)_03 | (18043-0, LN, "Left Ventricular Ejection Fraction") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| SV(Biplane)_03 | (F-32120, SRT, "Stroke Volume") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| SI(Biplane)_03 | (F-00078, SRT, "Stroke Index") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| CO(Biplane)_03 | (F-32100, SRT, "Cardiac Output") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| CI(Biplane)_03 | (F-32110, SRT, "Cardiac Index") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| ECG/HeartRate/Auto | (8867-4, LN, "Heart rate") | |
| 2D/LV Major | (G-A193, SRT, "Major Axis") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LV Minor | (G-A194, SRT, "Minor Axis") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/IVSd | (18154-5, LN, "Interventricular Septum Diastolic Thickness") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVIDd | (29436-3, LN, "Left Ventricle Internal End Diastolic Dimension") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVIDd Index | (GEU-1005-139, 99GEMS, "LVIDd Index") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVIDs | (29438-9, LN, "Left Ventricle Internal Systolic Dimension") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVIDs Index | (GEU-106-0029, 99GEMS, "Left Ventricle Internal Systolic Dimension Index") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVPWd | (18152-9, LN, "Left Ventricle Posterior Wall Diastolic Thickness") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVPWs | (18156-0, LN, "Left Ventricle Posterior Wall Systolic Thickness") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |

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| 2D/IVSs | (18158-6, LN, "Interventricular Septum Systolic Thickness") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVOT Diam | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| 2D/AVA/LVOT Diam | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| 2D/AVA/LVOT Area | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| 2D/EDV(Teich) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| 2D/ESV(Teich) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| 2D/EF(Teich) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| 2D/EDV(Cube) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |
| 2D/ESV(Cube) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |
| 2D/EF(Cube) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |
| 2D/%FS | (18051-3, LN, "Left Ventricular Fractional Shortening") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/%IVS Thck | (18054-7, LN, "Interventricular Septum % Thickening") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/%LVPW Thck | (18053-9, LN, "Left Ventricle Posterior Wall % Thickening") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/SV(Teich) | (F-32120, SRT, "Stroke Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| 2D/SI(Teich) | (F-00078, SRT, "Stroke Index") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| 2D/CO(Teich) | (F-32100, SRT, "Cardiac Output") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| 2D/CI(Teich) | (F-32110, SRT, "Cardiac Index") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| 2D/SV(Cube) | (F-32120, SRT, "Stroke Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |
| 2D/SI(Cube) | (F-00078, SRT, "Stroke Index") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |
| 2D/CO(Cube) | (F-32100, SRT, "Cardiac Output") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |

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| 2D/CI(Cube) | (F-32110, SRT, "Cardiac Index") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |
| 2D/LVd Mass | (18087-7, LN, "Left Ventricle Mass") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVd Mass Index | (GEU-1005-135, 99GEMS, "LVd Mass Index") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVs Mass | (18087-7, LN, "Left Ventricle Mass") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVs Mass Index | (GEU-1005-137, 99GEMS, "LVs Mass Index") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVd Mass/ASE | (18087-7, LN, "Left Ventricle Mass") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125221, DCM, "Left Ventricle Mass by M-mode") |
| 2D/LVd Mass Index/ASE | (GEU-1005-136, 99GEMS, "LVd Mass Index/ASE") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVs Mass/ASE | (18087-7, LN, "Left Ventricle Mass") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125221, DCM, "Left Ventricle Mass by M-mode") |
| 2D/LVs Mass Index/ASE | (GEU-1005-138, 99GEMS, "LVs Mass Index/ASE") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVA diastole | (G-0375, SRT, "Left Ventricular Diastolic Area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LVA systole | (G-0374, SRT, "Left Ventricular Systolic Area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/SAX/LVA diastole | (G-0375, SRT, "Left Ventricular Diastolic Area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(111031, DCM, "Image View")= (G-0397, SRT, "Parasternal short axis") |
| 2D/SAX/LVA systole | (G-0374, SRT, "Left Ventricular Systolic Area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(111031, DCM, "Image View")= (G-0397, SRT, "Parasternal short axis") |
| 2D/SAX/LVAepi diastole | (59093-5, LN, "Epicardial Area") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(111031, DCM, "Image View")= (G-0397, SRT, "Parasternal short axis") |
| 2D/SAX/LVAepi systole | (59093-5, LN, "Epicardial Area") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(111031, DCM, "Image View")= (G-0397, SRT, "Parasternal short axis") |
| 2D/SAX/LVAend diastole | (59094-3, LN, "Endocardial Area") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(111031, DCM, "Image View")= (G-0397, SRT, "Parasternal short axis") |
| 2D/SAX/LVAend systole | (59094-3, LN, "Endocardial Area") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(111031, DCM, "Image View")= (G-0397, SRT, "Parasternal short axis") |
| 2D/LVOT Area | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| 2D/EDV(A-L) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| 2D/EDV(MOD) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |

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| 2D/ESV(A-L) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| 2D/ESV(MOD) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| 2D/EF(A-L) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| 2D/SV(A-L) | (F-32120, SRT, "Stroke Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| 2D/SI(A-L) | (F-00078, SRT, "Stroke Index") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| 2D/EF(MOD) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| 2D/SV(MOD) | (F-32120, SRT, "Stroke Volume") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| 2D/SI(MOD) | (F-00078, SRT, "Stroke Index") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| LVLd(A4C) | (18074-5, LN, "Left Ventricular Major Axis Diastolic Dimension, 4-chamber view") | |
| LVAd(A4C) | (G-0375, SRT, "Left Ventricular Diastolic Area") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber") |
| LVEDV(A-L A4C) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| LVEDV(MOD A4C) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| LVLs(A4C) | (18075-2, LN, "Left Ventricular Major Axis Systolic Dimension, 4-chamber view") | |
| LVAs(A4C) | (G-0374, SRT, "Left Ventricular Systolic Area") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber") |
| LVESV(A-L A4C) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| LVESV(MOD A4C) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| EF(A-L A4C) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| SV(A-L A4C) | (F-32120, SRT, "Stroke Volume") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |

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| SI(A-L A4C) | (F-00078, SRT, "Stroke Index") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| CO(A-L A4C) | (F-32100, SRT, "Cardiac Output") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| CI(A-L A4C) | (F-32110, SRT, "Cardiac Index") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| EF(MOD A4C) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| SV(MOD A4C) | (F-32120, SRT, "Stroke Volume") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| SI(MOD A4C) | (F-00078, SRT, "Stroke Index") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| CO(MOD A4C) | (F-32100, SRT, "Cardiac Output") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| CI(MOD A4C) | (F-32110, SRT, "Cardiac Index") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| LVLd(A2C) | (18072-9, LN, "Left Ventricular Major Axis Diastolic Dimension, 2-chamber view") | |
| LVAd(A2C) | (G-0375, SRT, "Left Ventricular Diastolic Area") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber") |
| LVEDV(A-L A2C) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| LVEDV(MOD A2C) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| LVLs(A2C) | (18073-7, LN, "Left Ventricular Major Axis Systolic Dimension, 2-chamber view") | |
| LVAs(A2C) | (G-0374, SRT, "Left Ventricular Systolic Area") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber") |
| LVESV(A-L A2C) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| LVESV(MOD A2C) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |

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| EF(A-L A2C) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| SV(A-L A2C) | (F-32120, SRT, "Stroke Volume") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| SI(A-L A2C) | (F-00078, SRT, "Stroke Index") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| CO(A-L A2C) | (F-32100, SRT, "Cardiac Output") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| CI(A-L A2C) | (F-32110, SRT, "Cardiac Index") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| EF(MOD A2C) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| SV(MOD A2C) | (F-32120, SRT, "Stroke Volume") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| SI(MOD A2C) | (F-00078, SRT, "Stroke Index") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| CO(MOD A2C) | (F-32100, SRT, "Cardiac Output") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| CI(MOD A2C) | (F-32110, SRT, "Cardiac Index") | (111031, DCM, "Image View")= (G-A19B, SRT, "Apical two chamber")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| LVLd(LAX) | (GEU-1005-57, 99GEMS, "LVLd(LAX)") | |
| LVAd(LAX) | (G-0375, SRT, "Left Ventricular Diastolic Area") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis") |
| LVEDV(A-L LAX) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| LVEDV(MOD LAX) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis")<br>(G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| LVLs(LAX) | (GEU-1005-58, 99GEMS, "LVLs(LAX)") | |
| LVAs(LAX) | (G-0374, SRT, "Left Ventricular Systolic Area") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis") |
| LVESV(A-L LAX) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |

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| LVESV(MOD LAX) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis") (G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| EF(A-L LAX) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis") (G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| SV(A-L LAX) | (F-32120, SRT, "Stroke Volume") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis") (G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| SI(A-L LAX) | (F-00078, SRT, "Stroke Index") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis") (G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| CO(A-L LAX) | (F-32100, SRT, "Cardiac Output") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis") (G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| CI(A-L LAX) | (F-32110, SRT, "Cardiac Index") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis") (G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| EF(MOD LAX) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis") (G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| SV(MOD LAX) | (F-32120, SRT, "Stroke Volume") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis") (G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| SI(MOD LAX) | (F-00078, SRT, "Stroke Index") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis") (G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| CO(MOD LAX) | (F-32100, SRT, "Cardiac Output") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis") (G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| CI(MOD LAX) | (F-32110, SRT, "Cardiac Index") | (111031, DCM, "Image View")= (G-0395, SRT, "Apical long axis") (G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| LVEDV(MOD BP) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| LVESV(MOD BP) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| EF(Biplane) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| SV(Biplane) | (F-32120, SRT, "Stroke Volume") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| SI(Biplane) | (F-00078, SRT, "Stroke Index") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| CO(Biplane) | (F-32100, SRT, "Cardiac Output") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| CI(Biplane) | (F-32110, SRT, "Cardiac Index") | (G-C036, SRT, "Measurement Method")= (125207, DCM, "Method of Disks, Biplane") |
| LVLd(apical) | (18077-8, LN, "Left Ventricle diastolic major axis") | |
| LVLs(apical) | (18076-0, LN, "Left Ventricle systolic major axis") | |
| LVAd(sax MV) | (G-0375, SRT, "Left Ventricular Diastolic Area") | (111031, DCM, "Image View")= (G-039A, SRT, "Parasternal short axis at the Mitral Valve level") |
| LVAs(sax MV) | (G-0374, SRT, "Left Ventricular Systolic Area") | (111031, DCM, "Image View")= (G-039A, SRT, "Parasternal short axis at the Mitral Valve level") |

| LVAd(sax PM) | (G-0375, SRT, "Left Ventricular Diastolic Area") | (111031, DCM, "Image View")= (G-039B, SRT, "Parasternal short axis at the Papillary Muscle level") |
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| LVAs(sax PM) | (G-0374, SRT, "Left Ventricular Systolic Area") | (111031, DCM, "Image View")= (G-039B, SRT, "Parasternal short axis at the Papillary Muscle level") |
| LVAd(sax epi) | (G-0379, SRT, "Left Ventricle Epicardial Diastolic Area, psax pap view") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| LVAs(sax epi) | (59093-5, LN, "Epicardial Area") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole") (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (111031, DCM, "Image View")= (G-039B, SRT, "Parasternal short axis at the Papillary Muscle level") |
| LVAd(sax) | (G-0375, SRT, "Left Ventricular Diastolic Area") | (111031, DCM, "Image View")= (G-0397, SRT, "Parasternal short axis") |
| LVAs(sax) | (G-0374, SRT, "Left Ventricular Systolic Area") | (111031, DCM, "Image View")= (G-0397, SRT, "Parasternal short axis") |
| EDV(mod sim) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (G-C036, SRT, "Measurement Method")= (125227, DCM, "Modified Simpson") |
| ESV(mod sim) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (G-C036, SRT, "Measurement Method")= (125227, DCM, "Modified Simpson") |
| EF(mod sim) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (G-C036, SRT, "Measurement Method")= (125227, DCM, "Modified Simpson") |
| SV(mod sim) | (F-32120, SRT, "Stroke Volume") | (G-C036, SRT, "Measurement Method")= (125227, DCM, "Modified Simpson") |
| SI(mod sim) | (F-00078, SRT, "Stroke Index") | (G-C036, SRT, "Measurement Method")= (125227, DCM, "Modified Simpson") |
| CO(mod sim) | (F-32100, SRT, "Cardiac Output") | (G-C036, SRT, "Measurement Method")= (125227, DCM, "Modified Simpson") |
| CI(mod sim) | (F-32110, SRT, "Cardiac Index") | (G-C036, SRT, "Measurement Method")= (125227, DCM, "Modified Simpson") |
| EDV(bullet) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (G-C036, SRT, "Measurement Method")= (125228, DCM, "Bullet Method") |
| ESV(bullet) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (G-C036, SRT, "Measurement Method")= (125228, DCM, "Bullet Method") |
| EF(bullet) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (G-C036, SRT, "Measurement Method")= (125228, DCM, "Bullet Method") |
| SV(bullet) | (F-32120, SRT, "Stroke Volume") | (G-C036, SRT, "Measurement Method")= (125228, DCM, "Bullet Method") |
| SI(bullet) | (F-00078, SRT, "Stroke Index") | (G-C036, SRT, "Measurement Method")= (125228, DCM, "Bullet Method") |
| CO(bullet) | (F-32100, SRT, "Cardiac Output") | (G-C036, SRT, "Measurement Method")= (125228, DCM, "Bullet Method") |
| CI(bullet) | (F-32110, SRT, "Cardiac Index") | (G-C036, SRT, "Measurement Method")= (125228, DCM, "Bullet Method") |
| EDV(bp el) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (G-C036, SRT, "Measurement Method")= (125211, DCM, "Biplane Ellipse") |
| ESV(bp el) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (G-C036, SRT, "Measurement Method")= (125211, DCM, "Biplane Ellipse") |
| EF(bp el) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (G-C036, SRT, "Measurement Method")= (125211, DCM, "Biplane Ellipse") |
| SV(bp el) | (F-32120, SRT, "Stroke Volume") | (G-C036, SRT, "Measurement Method")= (125211, DCM, "Biplane Ellipse") |
| SI(bp el) | (F-00078, SRT, "Stroke Index") | (G-C036, SRT, "Measurement Method")= (125211, DCM, "Biplane Ellipse") |
| CO(bp el) | (F-32100, SRT, "Cardiac Output") | (G-C036, SRT, "Measurement Method")= (125211, DCM, "Biplane Ellipse") |
| CI(bp el) | (F-32110, SRT, "Cardiac Index") | (G-C036, SRT, "Measurement Method")= (125211, DCM, "Biplane Ellipse") |

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| LVd Mass(A-L) | (18087-7, LN, "Left Ventricle Mass") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| LVs Mass(A-L) | (18087-7, LN, "Left Ventricle Mass") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole")<br>(G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| MM/IVSd | (18154-5, LN, "Interventricular Septum Diastolic Thickness") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/IVSs | (18158-6, LN, "Interventricular Septum Systolic Thickness") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVIDd | (29436-3, LN, "Left Ventricle Internal End Diastolic Dimension") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVIDd Index | (GEU-1005-88, 99GEMS, "LVIDd Index") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVIDs | (29438-9, LN, "Left Ventricle Internal Systolic Dimension") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVIDs Index | (GEU-1005-89, 99GEMS, "LVIDs Index") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVPWd | (18152-9, LN, "Left Ventricle Posterior Wall Diastolic Thickness") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVPWs | (18156-0, LN, "Left Ventricle Posterior Wall Systolic Thickness") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/EDV(Teich) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| MM/ESV(Teich) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| MM/EF(Teich) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| MM/SV(Teich) | (F-32120, SRT, "Stroke Volume") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| MM/SI(Teich) | (F-00078, SRT, "Stroke Index") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| MM/CO(Teich) | (F-32100, SRT, "Cardiac Output") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| MM/CI(Teich) | (F-32110, SRT, "Cardiac Index") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125209, DCM, "Teichholz") |
| MM/EDV(Cube) | (18026-5, LN, "Left Ventricular End Diastolic Volume") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |
| MM/ESV(Cube) | (18148-7, LN, "Left Ventricular End Systolic Volume") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |
| MM/EF(Cube) | (18043-0, LN, "Left Ventricular Ejection Fraction") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |
| MM/SV(Cube) | (F-32120, SRT, "Stroke Volume") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |
| MM/SI(Cube) | (F-00078, SRT, "Stroke Index") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |

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| MM/CO(Cube) | (F-32100, SRT, "Cardiac Output") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |
| MM/CI(Cube) | (F-32110, SRT, "Cardiac Index") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125206, DCM, "Cube Method") |
| MM/%FS | (18051-3, LN, "Left Ventricular Fractional Shortening") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/IVSd/LVPWd | (18155-2, LN, "Interventricular Septum to Posterior Wall Thickness Ratio") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole")<br>(G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/%IVS Thck | (18054-7, LN, "Interventricular Septum % Thickening") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/%LVPW Thck | (18053-9, LN, "Left Ventricle Posterior Wall % Thickening") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVd Mass | (18087-7, LN, "Left Ventricle Mass") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole")<br>(G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVs Mass | (18087-7, LN, "Left Ventricle Mass") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole")<br>(G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVd Mass Index | (GEU-1005-140, 99GEMS, "LVd Mass Index") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVs Mass Index | (GEU-1005-142, 99GEMS, "LVs Mass Index") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVd Mass/ASE | (18087-7, LN, "Left Ventricle Mass") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole")<br>(G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125221, DCM, "Left Ventricle Mass by M-mode") |
| MM/LVs Mass/ASE | (18087-7, LN, "Left Ventricle Mass") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole")<br>(G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C036, SRT, "Measurement Method")= (125221, DCM, "Left Ventricle Mass by M-mode") |
| MM/LVd Mass Index/ASE | (GEU-1005-141, 99GEMS, "LVd Mass Index/ASE") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVs Mass Index/ASE | (GEU-1005-143, 99GEMS, "LVs Mass Index/ASE") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/HeartRate | (8867-4, LN, "Heart rate") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVPEP | (18068-7, LN, "Left Ventricle Pre Ejection Period") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVET | (20222-6, LN, "Ejection Time") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/LVPEP/ET Ratio | (59088-5, LN, "Pre-Ejection Period/Ejection Time Ratio") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/Vcf mean | (59117-2, LN, "Mean Velocity of Circumferential Fiber Shortening (Mean VcFv)") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/Vcf mean (corr) | (59118-0, LN, "HR-Corrected Mean Velocity of Circumferential Fiber Shortening") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| IVCT | (G-037E, SRT, "Left Ventricular Isovolumic Contraction Time") | |
| IVRT | (18071-1, LN, "Left Ventricular Isovolumic Relaxation Time") | |
| MP/LVOT Diam | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| MP/LVOT VTI | (20354-7, LN, "Velocity Time Integral") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| LVOT Vmax | (11726-7, LN, "Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| LVOT Vmax P | (11726-7, LN, "Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |

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| LVOT maxPG | (20247-3, LN, "Peak Gradient") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| LVOT Vmean | (20352-1, LN, "Mean Velocity") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| LVOT meanPG | (20256-4, LN, "Mean Gradient") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| LVOT VTI | (20354-7, LN, "Velocity Time Integral") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| LVOT Env.Ti | (GEU-1005-32, 99GEMS, "LVOT Env.Ti") | |
| LVOT HR | (8867-4, LN, "Heart rate") | |
| LVOT SV | (F-32120, SRT, "Stroke Volume") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| LVOT SI | (F-00078, SRT, "Stroke Index") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| LVOT CO | (F-32100, SRT, "Cardiac Output") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| LVOT CI | (F-32110, SRT, "Cardiac Index") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| AVA/LVOT Vmax | (11726-7, LN, "Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| AVA/LVOT Vmax P | (11726-7, LN, "Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| AVA/LVOT maxPG | (20247-3, LN, "Peak Gradient") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| AVA/LVOT Vmean | (20352-1, LN, "Mean Velocity") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| AVA/LVOT meanPG | (20256-4, LN, "Mean Gradient") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| AVA/LVOT VTI | (20354-7, LN, "Velocity Time Integral") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| AVA/LVOT Env.Ti | (GEU-1005-33, 99GEMS, "AVA/LVOT Env.Ti") | |
| AVA/LVOT HR | (8867-4, LN, "Heart rate") | |
| AVA/LVOT SV | (F-32120, SRT, "Stroke Volume") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| AVA/LVOT SI | (F-00078, SRT, "Stroke Index") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| AVA/LVOT CO | (F-32100, SRT, "Cardiac Output") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| AVA/LVOT CI | (F-32110, SRT, "Cardiac Index") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| LVET | (20222-6, LN, "Ejection Time") | |
| LVPEP | (18068-7, LN, "Left Ventricle Pre Ejection Period") | |
| LVPEP/ET Ratio | (GEU-1005-130, 99GEMS, "LVPEP/ET Ratio") | |
| LIMP | (G-037F, SRT, "Left Ventricular Index of Myocardial Performance") | |
| AP/LVOT Diam | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| AP/LVOT VTI | (20354-7, LN, "Velocity Time Integral") | (G-C0E3, SRT, "Finding Site")= (T-32650, SRT, "Left Ventricular Outflow Tract") |
| ECG/R-R interval | (122182, DCM, "R-R interval") | |
| ECG/HeartRate | (8867-4, LN, "Heart rate") | |

| | | |
|---|---|---|
| IMP/LVOT | (GEU-1005-147, 99GEMS, "IMP/LVOT") | (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") |

### 16.2.8 Mitral Valve

**TABLE 16-22 MITRAL VALVE**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| MM/MV lflt sep | (59109-9, LN, "Leaflet Separation") | |
| MM/MV D-E Slope | (59127-1, LN, "D-E Slope") | |
| MV Eann Velocity | (18037-2, LN, "Mitral Valve E-Wave Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (T-35313, SRT, "Mitral Annulus") |
| MR Acc Slope | (20269-7, LN, "Mitral Valve Acceleration Slope") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| MR dp/dt | (18035-6, LN, "Mitral Regurgitation dP/dt derived from Mitral Regurgitation velocity") | |
| MVET | (20222-6, LN, "Ejection Time") | |
| PISA/MR/RF | (G-0390, SRT, "Regurgitant Fraction") | (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| CFM/MR Signal Area | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") <br> (G-0373, SRT, "Image Mode")= (R-409E2, SRT, "Doppler Color Flow") |
| 2D/MV Annulus Diam | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") <br> (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") <br> (G-C0E3, SRT, "Finding Site")= (T-35313, SRT, "Mitral Annulus") |
| 2D/EPSS | (18036-4, LN, "Mitral Valve EPSS, E wave") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/MVL Thck | (59110-7, LN, "Leaflet Thickness") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/SAX/MVA | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") <br> (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") <br> (111031, DCM, "Image View")= (G-0397, SRT, "Parasternal short axis") |
| 2D/MVA Planimetry | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") <br> (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") <br> (G-C036, SRT, "Measurement Method")= (125220, DCM, "Planimetry") |
| 2D/MV Area | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") <br> (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| MM/EPSS | (18036-4, LN, "Mitral Valve EPSS, E wave") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/MV D-E Excursion | (17997-8, LN, "Mitral Valve D-E Excursion") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/MV E-F Slope | (18040-6, LN, "Mitral Valve E-F Slope by M-Mode") | |
| MM/MV CE Dist | (59122-2, LN, "C-E Distance") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/MV E/A Ratio | (18038-0, LN, "Mitral Valve E to A Ratio") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MV Acc Time | (20168-1, LN, "Acceleration Time") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| MV Acc Slope | (20269-7, LN, "Mitral Valve Acceleration Slope") | |
| MV A Dur | (G-0385, SRT, "Mitral Valve A-Wave Duration") | |

| | | |
|---|---|---|
| MV E Velocity | (18037-2, LN, "Mitral Valve E-Wave Peak Velocity") | |
| MV E VTI | (GEU-1005-165, 99GEMS, "MV E VTI") | (R-4089A, SRT, "Cardiac Cycle Point")= (R-40B1B, SRT, "Early Diastole") |
| MV E Env.Ti | (GEU-1005-160, 99GEMS, "MV E Env.Ti") | |
| MV A Velocity | (17978-8, LN, "Mitral Valve A-Wave Peak Velocity") | |
| MV A VTI | (GEU-1005-164, 99GEMS, "MV A VTI") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32030, SRT, "Atrial Systole") |
| MV A Env.Ti | (GEU-1005-159, 99GEMS, "MV A Env.Ti") | |
| MV Dec Time | (20217-6, LN, "Deceleration Time") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| MV PHT | (20280-4, LN, "Pressure Half-Time") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| MV Dec Slope | (20216-8, LN, "Deceleration Slope") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| MVA (PHT) | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method")= (125210, DCM, "Area by Pressure Half-Time") |
| MVA (VTI) | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method")= (125215, DCM, "Continuity Equation by Velocity Time Integral") |
| MV meanPG | (20256-4, LN, "Mean Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| MV Vmax | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| MV Vmean | (20352-1, LN, "Mean Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| MV maxPG | (20247-3, LN, "Peak Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| MV Env.Ti | (GEU-1005-157, 99GEMS, "MV Env.Ti") | |
| MV VTI | (GEU-1005-162, 99GEMS, "MV VTI") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| MV HR | (8867-4, LN, "Heart rate") | |
| MV SV | (F-32120, SRT, "Stroke Volume") | |
| MV SI | (F-00078, SRT, "Stroke Index") | |
| MV CO | (F-32100, SRT, "Cardiac Output") | |
| MV CI | (F-32110, SRT, "Cardiac Index") | |
| MV E/A Ratio | (18038-0, LN, "Mitral Valve E to A Ratio") | |
| MV E/A Ratio/Calc | (18038-0, LN, "Mitral Valve E to A Ratio") | |
| MV Acc Time/MV Dec Time | (G-0386, SRT, "Mitral Valve AT/DT Ratio") | |
| MV dp/dt | (59120-6, LN, "dP/dt by US") | |
| MV Time To Peak | (59121-4, LN, "Time to Peak by US") | |
| MR Vmax | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| MR meanPG | (20256-4, LN, "Mean Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| MR Vmean | (20352-1, LN, "Mean Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |

| | | |
|---|---|---|
| MR maxPG | (20247-3, LN, "Peak Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| MR Env.Ti | (GEU-1005-158, 99GEMS, "MR Env.Ti") | |
| MR VTI | (GEU-1005-161, 99GEMS, "MR VTI") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| MP VTI | (GEU-1005-163, 99GEMS, "MP VTI") | |
| MP Area | (GEU-1005-132, 99GEMS, "MP Area") | |
| MCO | (G-0387, SRT, "Mitral Valve Closure to Opening Time") | |
| PISA/MR/Flow | (34141-2, LN, "Peak Instantaneous Flow Rate") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/MR/Radius | (GEU-1005-36, 99GEMS, "PISA/MR/Radius") | |
| PISA/MR/Velocity | (GEU-1005-37, 99GEMS, "PISA/MR/Velocity") | |
| PISA/MR/Vmax | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/MR/VTI | (20354-7, LN, "Velocity Time Integral") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/MR/ERO | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/MR/RV | (33878-0, LN, "Volume Flow") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| MV Eprime Velocity | (59133-9, LN, "Peak Tissue Velocity") | (R-4089A, SRT, "Cardiac Cycle Point")= (R-40B1B, SRT, "Early Diastole") (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") (G-C0E3, SRT, "Finding Site")= (T-35313, SRT, "Mitral Annulus") |
| MV E/Eprime Ratio/Calc | (59111-5, LN, "E Velocity to Annulus E Velocity Ratio") | (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") |
| MV Aprime Velocity | (GEU-1005-133, 99GEMS, "MV Aprime Velocity") | (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") |
| IMP/MCO | (G-0387, SRT, "Mitral Valve Closure to Opening Time") | (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") |

### 16.2.9 Pulmonary Artery

**TABLE 16-23 PULMONARY ARTERY**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| PA Vmax | (11726-7, LN, "Peak Systolic Velocity") | |
| PA maxPG | (20247-3, LN, "Peak Gradient") | |
| 2D/MPA | (18020-8, LN, "Main Pulmonary Artery Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/RPA | (18021-6, LN, "Right Pulmonary Artery Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |

| | | |
|---|---|---|
| 2D/LPA | (18019-0, LN, "Left Pulmonary Artery Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LAX/RPA area | (GEU-1005-73, 99GEMS, "LAX/RPA area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/LAX/LPA area | (GEU-1005-74, 99GEMS, "LAX/LPA area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/SAX/RPA area | (GEU-1005-76, 99GEMS, "SAX/RPA area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/SAX/LPA area | (GEU-1005-75, 99GEMS, "SAX/LPA area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| RPA Vmax | (11726-7, LN, "Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (T-44200, SRT, "Right Pulmonary Artery") |
| RPA maxPG | (20247-3, LN, "Peak Gradient") | (G-C0E3, SRT, "Finding Site")= (T-44200, SRT, "Right Pulmonary Artery") |
| LPA Vmax | 11726-7, LN, "Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (T-44400, SRT, "Left Pulmonary Artery") |
| LPA maxPG | (20247-3, LN, "Peak Gradient") | (G-C0E3, SRT, "Finding Site")= (T-44400, SRT, "Left Pulmonary Artery") |
| MPA Vmax | (G-038A, SRT, "Main Pulmonary Artery Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (T-44000, SRT, " Pulmonary Artery") |
| MPA maxPG | (20247-3, LN, "Peak Gradient") | (G-C0E3, SRT, "Finding Site")= (T-44000, SRT, " Pulmonary Artery") |
| PAEDP | (GEU-1005-42, 99GEMS, "PAEDP") | |

## 16.2.10  Pericardial cavity

**TABLE 16-24 PERICARDIAL CAVITY**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| 2D/PEs | (121206, DCM, "Distance") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole") (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C0E3, SRT, "Finding Site")= (D3-90008, SRT, "Pericardial effusion") |
| 2D/PEd | (121206, DCM, "Distance") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole") (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") (G-C0E3, SRT, "Finding Site")= (D3-90008, SRT, "Pericardial effusion") |
| MM/PEd | (121206, DCM, "Distance") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole") (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") (G-C0E3, SRT, "Finding Site")= (D3-90008, SRT, "Pericardial effusion") |

## 16.2.11  Pulmonic Valve

**TABLE 16-25 PULMONIC VALVE**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| CFM/PR Signal Area | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (G-0373, SRT, "Image Mode")= (R-409E2, SRT, "Doppler Color Flow") |
| 2D/PV Annulus Diam | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/PV Area | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| MM/Q-to-PV close | (20295-2, LN, "Time from Q wave to Pulmonic Valve Closes") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |

| | | |
|---|---|---|
| PV Vmax | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| PV Vmax P | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| PV maxPG | (20247-3, LN, "Peak Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| PV Vmean | (20352-1, LN, "Mean Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| PV meanPG | (20256-4, LN, "Mean Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| PV Acc Time | (20168-1, LN, "Acceleration Time") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| PV VTI | (20354-7, LN, "Velocity Time Integral") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| PVA (VTI) | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method")= (125215, DCM, "Continuity Equation by Velocity Time Integral") |
| PVA (Vmax) | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method")= (125214, DCM, "Continuity Equation by Peak Velocity") |
| PVA (Vmax)P | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method")= (125214, DCM, "Continuity Equation by Peak Velocity") |
| PV Env.Ti | (GEU-1005-39, 99GEMS, "PV Env.Ti") | |
| PV HR | (8867-4, LN, "Heart rate") | |
| PV SV | (GEU-1005-107, 99GEMS, "PV SV") | |
| PV SI | (GEU-1005-106, 99GEMS, "PV SI") | |
| PV CO | (GEU-1005-105, 99GEMS, "PV CO") | |
| PV CI | (GEU-1005-104, 99GEMS, "PV CI") | |
| PV Acc Slope | (20167-3, LN, "Acceleration Slope") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| PVET | (18042-2, LN, "Pulmonic Valve Ejection Time") | |
| SD/Q-to-PV close | (20295-2, LN, "Time from Q wave to Pulmonic Valve Closes") | (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") |
| PV Acc Time/ET Ratio | (G-0388, SRT, "Ratio of Pulmonic Valve Acceleration Time to Ejection Time") | |
| PV dp/dt | (GEU-1005-153, 99GEMS, "PV dp/dt") | |
| PV Time To Peak | (GEU-1005-38, 99GEMS, "PV Time To Peak") | |
| PR PHT | (20280-4, LN, "Pressure Half-Time") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| PR Dec Time | (20217-6, LN, "Deceleration Time") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| PR Dec Slope | (20216-8, LN, "Deceleration Slope") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| PR Vmax | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| PR maxPG | (20247-3, LN, "Peak Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |

| | | |
|---|---|---|
| PR Vmean | (20352-1, LN, "Mean Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| PR meanPG | (20256-4, LN, "Mean Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| PR Env.Ti | (59108-1, LN, "Envelope Duration") | |
| PR VTI | (20354-7, LN, "Velocity Time Integral") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| PRend Vmax | (18026-5, LN, "End Diastolic Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| PRend maxPG | (20247-3, LN, "Peak Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (R-4089A, SRT, "Cardiac Cycle Point")= (F-32011, SRT, "End Diastole") |
| PR dp/dt | (GEU-1005-154, 99GEMS, "PR dp/dt") | |
| PV A Dur-MV A Dur | (GEU-1005-124, 99GEMS, "PV A Dur-MV A Dur") | |
| PV A Dur/MV VTI | (GEU-1005-122, 99GEMS, "PV A Dur/MV VTI") | |
| PV A Dur/MV A Dur | (GEU-1005-123, 99GEMS, "PV A Dur/MV A Dur") | |
| PISA/PR/Flow | (34141-2, LN, "Peak Instantaneous Flow Rate") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/PR/Vmax | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/PR/VTI | (20354-7, LN, "Velocity Time Integral") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/PR/ERO | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/PR/RV | (33878-0, LN, "Volume Flow") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PR HR | (8867-4, LN, "Heart rate") | (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") |

### 16.2.12 Pulmonary Venous Structure

**TABLE 16-26 PULMONARY VENOUS STRUCTURE**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| P_Vein S | (29450-4, LN, "Pulmonary Vein Systolic Peak Velocity") | |
| P_Vein D | (29451-2, LN, "Pulmonary Vein Diastolic Peak Velocity") | |
| P_Vein A | (29453-8, LN, "Pulmonary Vein Atrial Contraction Reversal Peak Velocity") | |
| P_Vein A Dur | (G-038B, SRT, "Pulmonary Vein A-Wave Duration") | |
| P_Vein S/D Ratio | (29452-0, LN, "Pulmonary Vein Systolic to Diastolic Ratio") | |

| | | |
|---|---|---|
| P_Vein S VTI | (G-038C, SRT, "Pulmonary Vein S-Wave VTI") | |
| P_Vein S Env.Ti | (59108-1, LN, "Envelope Duration") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole") |
| P_Vein D VTI | (G-038D, SRT, "Pulmonary Vein D-Wave VTI") | |
| P_Vein D Env.Ti | (59108-1, LN, "Envelope Duration") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole") |

### 16.2.13  Right Atrium

**TABLE 16-27 RIGHT ATRIUM**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| 2D/RA | (M-02550, SRT, "Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/RAD Major | (G-A193, SRT, "Major Axis") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/RAD Minor | (G-A194, SRT, "Minor Axis") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/RAA diastole | (GEU-1005-70, 99GEMS, "RAA diastole") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/RAA systole | (17988-7, LN, "Right Atrium Systolic Area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/RA Area | (GEU-1005-134", 99GEMS, "RA Area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| RALd(A4C) | (29466-0, LN, "Right Atrium Superior-Inferior Dimension, 4-chamber view") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole") |
| RAAd(A4C) | (17988-7, LN, "Right Atrium Area A4C view") | |
| RAEDV(A-L A4C) | (GEU-1005-65, 99GEMS, "RAEDV(A-L A4C)") | |
| RAEDV(MOD A4C) | (GEU-1005-66, 99GEMS, "RAEDV(MOD A4C)") | |
| RALs(A4C) | (29466-0, LN, "Right Atrium Superior-Inferior Dimension, 4-chamber view") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole") |
| RAAs(A4C) | (17988-7, LN, "Right Atrium Systolic Area") | |
| RAESV(A-L A4C) | (GEU-1005-67, 99GEMS, "RAESV(A-L A4C)") | |
| RAESV(MOD A4C) | (GEU-1005-68, 99GEMS, "RAESV(MOD A4C)") | |
| RAP | (18070-3, LN, "Right Atrium Systolic Pressure") | |

### 16.2.14  Right Ventricle

**TABLE 16-28 RIGHT VENTRICLE**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| MM/RVOT | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode")<br>(G-C0E3, SRT, "Finding Site")= (G-039D, SRT, "Right Ventricular Outflow Tract") |
| 2D/RVOT Diam | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C0E3, SRT, "Finding Site")= (G-039D, SRT, "Right Ventricular Outflow Tract") |
| 2D/RVAWd | (18153-7, LN, "Right Ventricular Anterior Wall Diastolic Thickness") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/RVAWs | (18157-8, LN, "Right Ventricular Anterior Wall Systolic Thickness") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/RVIDd | (20304-2, LN, "Right Ventricular Internal Diastolic Dimension") | |
| 2D/RVIDs | (20305-9, LN, "Right Ventricular Internal Systolic Dimension") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/RVD Major | (G-A193, SRT, "Major Axis") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |

| | | |
|---|---|---|
| 2D/RVD Minor | (G-A194, SRT, "Minor Axis") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/RVA diastole | (GEU-1005-71, 99GEMS, "RVA diastole") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/RVA systole | (GEU-1005-72, 99GEMS, "RVA systole") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| 2D/RVOT Area | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") <br> (G-C0E3, SRT, "Finding Site")= (G-039D, SRT, "Right Ventricular Outflow Tract") |
| RVLd(A4C) | (18078-6, LN, "Right Ventricular Major Axis Diastolic Dimension, 4-chamber view") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber") |
| RVAd(A4C) | (G-A166, SRT, "Area") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32010, SRT, "Diastole") <br> (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber") |
| RVEDV(A-L A4C) | (8822-3, LN, "Right Ventricular ED Volume") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber") <br> (G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| RVEDV(MOD A4C) | (8822-3, LN, "Right Ventricular ED Volume") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber") <br> (G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| RVLs(A4C) | (18079-4, LN, "Right Ventricular Major Axis Systolic Dimension, 4-chamber view") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber") |
| RVAs(A4C) | (G-A166, SRT, "Area") | (R-4089A, SRT, "Cardiac Cycle Point")= (F-32020, SRT, "Systole") <br> (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber") |
| RVESV(A-L A4C) | (8824-5, LN, "Right Ventricular ES Volume") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber") <br> (G-C036, SRT, "Measurement Method")= (125205, DCM, "Area-Length Single Plane") |
| RVESV(MOD A4C) | (8824-5, LN, "Right Ventricular ES Volume") | (111031, DCM, "Image View")= (G-A19C, SRT, "Apical four chamber") <br> (G-C036, SRT, "Measurement Method")= (125208, DCM, "Method of Disks, Single Plane") |
| MM/RVIDd | (20304-2, LN, "Right Ventricular Internal Diastolic Dimension") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/RVIDs | (20305-9, LN, "Right Ventricular Internal Systolic Dimension") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/RVIDs | (20305-9, LN, "Right Ventricular Internal Systolic Dimension") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/RVAWd | (18153-7, LN, "Right Ventricular Anterior Wall Diastolic Thickness") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/RVAWs | (18157-8, LN, "Right Ventricular Anterior Wall Systolic Thickness") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/RVPEP | (20301-8, LN, "Right Ventricle Pre Ejection Period") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/RVET | (20222-6, LN, "Ejection Time") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| MM/RVPEP/ET Ratio | (59088-5, LN, "Pre-Ejection Period/Ejection Time Ratio") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| Est RVSP | (G-0380, SRT, "Right Ventricular Peak Systolic Pressure") | |
| RVOT Vmax | (11726-7, LN, "Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (G-039D, SRT, "Right Ventricular Outflow Tract") |
| RVOT Vmax P | (11726-7, LN, "Peak Velocity") | (G-C0E3, SRT, "Finding Site")= (G-039D, SRT, "Right Ventricular Outflow Tract") |
| RVOT maxPG | (20247-3, LN, "Peak Gradient") | (G-C0E3, SRT, "Finding Site")= (G-039D, SRT, "Right Ventricular Outflow Tract") |

| | | |
|---|---|---|
| RVOT Vmean | (20352-1, LN, "Mean Velocity") | (G-C0E3, SRT, "Finding Site")= (G-039D, SRT, "Right Ventricular Outflow Tract") |
| RVOT meanPG | (20256-4, LN, "Mean Gradient") | (G-C0E3, SRT, "Finding Site")= (G-039D, SRT, "Right Ventricular Outflow Tract") |
| RVOT VTI | (20354-7, LN, "Velocity Time Integral") | (G-C0E3, SRT, "Finding Site")= (G-039D, SRT, "Right Ventricular Outflow Tract") |
| RVOT Env.Ti | (59108-1, LN, "Envelope Duration") | |
| RVOT HR | (8867-4, LN, "Heart rate") | |
| RVOT SV | (F-32120, SRT, "Stroke Volume") | (G-C0E3, SRT, "Finding Site")= (G-039D, SRT, "Right Ventricular Outflow Tract") |
| RVOT SI | (F-00078, SRT, "Stroke Index") | (G-C0E3, SRT, "Finding Site")= (G-039D, SRT, "Right Ventricular Outflow Tract") |
| RVOT CO | (F-32100, SRT, "Cardiac Output") | (G-C0E3, SRT, "Finding Site")= (G-039D, SRT, "Right Ventricular Outflow Tract") |
| RVOT CI | (F-32110, SRT, "Cardiac Index") | (G-C0E3, SRT, "Finding Site")= (G-039D, SRT, "Right Ventricular Outflow Tract") |
| RVPEP | (20301-8, LN, "Right Ventricle Pre Ejection Period") | |
| RVET | (20222-6, LN, "Ejection Time") | |
| RVPEP/ET Ratio | (GEU-1005-129, 99GEMS, "RVPEP/ET Ratio") | |
| RIMP | (G-0381, SRT, "Right Ventricular Index of Myocardial Performance") | |
| IMP/RVOT | (GEU-1005-148, 99GEMS, "IMP/RVOT") | (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") |

### 16.2.15 Tricuspid Valve

**TABLE 16-29 TRICUSPID VALVE**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| CFM/TR Signal Area | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow")<br>(G-0373, SRT, "Image Mode")= (R-409E2, SRT, "Doppler Color Flow") |
| 2D/TV Annulus Diam | (G-038F, SRT, "Cardiovascular Orifice Diameter") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C0E3, SRT, "Finding Site")= (T-35111, SRT, "Tricuspid Annulus") |
| 2D/TV Area | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |
| MM/Q-to-TV open | (20296-0, LN, "Time from Q wave to Tricuspid Valve Opens") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| TV Acc Time | (20168-1, LN, "Acceleration Time") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| TV Acc Slope | (20343-0, LN, "Tricuspid Valve Acceleration Slope") | |
| TV E Velocity | (18031-5, LN, "Tricuspid Valve E Wave Peak Velocity") | |
| TV A Velocity | (18030-7, LN, "Tricuspid Valve A Wave Peak Velocity") | |
| TV Dec Time | (20217-6, LN, "Deceleration Time") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| TV Dec Slope | (20216-8, LN, "Deceleration Slope") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |

| | | |
|---|---|---|
| TV PHT | (20280-4, LN, "Pressure Half-Time") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| TVA | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| TV meanPG | (20256-4, LN, "Mean Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| TV Vmax | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| TV Vmax P | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| TV Vmean | (20352-1, LN, "Mean Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| TV maxPG | (20247-3, LN, "Peak Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| TV VTI | (20354-7, LN, "Velocity Time Integral") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") |
| TVA (VTI) | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method")= (125215, DCM, "Continuity Equation by Velocity Time Integral") |
| TVA (Vmax) | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method")= (125214, DCM, "Continuity Equation by Peak Velocity") |
| TVA (Vmax)P | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow") (G-C036, SRT, "Measurement Method")= (125214, DCM, "Continuity Equation by Peak Velocity") |
| TV HR | (8867-4, LN, "Heart rate") | |
| TV E/A Ratio | (18039-8, LN, "Tricuspid Valve E to A Ratio") | |
| TV Acc Time/TV Dec Time | (GEU-1005-144, 99GEMS, "TV Acc Time/TV Dec Time") | |
| SD/Q-to-TV open | (20296-0, LN, "Time from Q wave to Tricuspid Valve Opens") | (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") |
| TR meanPG | (20256-4, LN, "Mean Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| TR Vmax | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| TR Vmean | (20352-1, LN, "Mean Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| TR maxPG | (20247-3, LN, "Peak Gradient") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| TR VTI | (20354-7, LN, "Velocity Time Integral") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") |
| TCO | (G-0389, SRT, "Tricuspid Valve Closure to Opening Time") | |
| PISA/TR/Flow | (34141-2, LN, "Peak Instantaneous Flow Rate") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/TR/Vmax | (11726-7, LN, "Peak Velocity") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow") (G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |

| | | |
|---|---|---|
| PISA/TR/VTI | (20354-7, LN, "Velocity Time Integral") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow")<br>(G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/TR/ERO | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow")<br>(G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| PISA/TR/RV | (33878-0, LN, "Volume Flow") | (G-C048, SRT, "Direction of Flow")= (R-42E61, SRT, "Regurgitant Flow")<br>(G-C036, SRT, "Measurement Method")= (125216, DCM, "Proximal Isovelocity Surface Area") |
| 2D/TVA Planimetry | (G-038E, SRT, "Cardiovascular Orifice Area") | (G-C048, SRT, "Direction of Flow")= (R-42047, SRT, "Antegrade Flow")<br>(G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C036, SRT, "Measurement Method")= (125220, DCM, "Planimetry") |
| TV A Dur | (59105-7, LN, "A-Wave Duration") | (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") |
| IMP/TCO | (G-0389, SRT, "Tricuspid Valve Closure to Opening Time") | (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") |

## 16.2.16 Vena Cava

**TABLE 16-30 VENA CAVA**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| 2D/IVC Diam Ins | (18006-7, LN, "Inferior Vena Cava Diameter") | (R-40899, SRT, "Respiratory Cycle Point")= (F-20010, SRT, "Inspiration") |
| 2D/IVC Diam Exp | (18006-7, LN, "Inferior Vena Cava Diameter") | (R-40899, SRT, "Respiratory Cycle Point")= (F-20020, SRT, "Expiration") |
| 2D/SVC Diam Ins | (18007-5, LN, "Superior Vena Cava Diameter") | (R-40899, SRT, "Respiratory Cycle Point")= (F-20010, SRT, "Inspiration") |
| 2D/SVC Diam Exp | (18007-5, LN, "Superior Vena Cava Diameter") | (R-40899, SRT, "Respiratory Cycle Point")= (F-20020, SRT, "Expiration") |
| 2D/IVC | (18006-7, LN, "Inferior Vena Cava Diameter") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode") |

## 16.2.17 General Anatomy

**TABLE 16-31 GENERAL ANATOMY**

| Name of GEU parameter | Base Measurement Concept Name | Concept or Acquisition Context Modifier |
|---|---|---|
| 2D/LCA | (GEU-1005-85, 99GEMS, "LCA") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C0E3, SRT, "Finding Site")= (T-43107,SRT," Left Main Coronary Artery") |
| 2D/RCA | (SRT, T-43200, "Right Coronary Artery") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C0E3, SRT, "Finding Site")= (T-43203,SRT," Right Coronary Artery") |
| 2D/LCX | (GEU-1005-87, 99GEMS, "LCX") | (G-0373, SRT, "Image Mode")= (G-03A2, SRT, "2D mode")<br>(G-C0E3, SRT, "Finding Site")= (T-43120,SRT," Circumflex Coronary Artery") |
| MM/R-R interval | (122182, DCM, "R-R interval") | (G-0373, SRT, "Image Mode")= (G-0394, SRT, "M mode") |
| IMP/LIMP | (GEU-1005-145, 99GEMS, "IMP/LIMP") | (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") Left, Interaction Between Intramyocardial Pressure |
| IMP/RIMP | (GEU-1005-146, 99GEMS, "IMP/RIMP") | (G-0373, SRT, "Image Mode")= (R-409E4, SRT, "Doppler Pulsed") Right, Interaction Between Intramyocardial Pressure |

## 16.3 OB-GYN ULTRASOUND PROCEDURE REPORT

This section describes the contents of the OB-GYN Ultrasound Procedure Report (TID 5000) SR.

### 16.3.1 OB-GYN Template Structure

TID 5000
OB-GYN Ultrasound
Procedure Report

TID 5001
Patient
Characteristics

TID 5002
OB-GYN Procedure
Summary Section

TID 300
Measurement

TID 5003
OB-GYN Fetal
Summary

TID 5004
Fetal Biometry
Ratio Section

TID 1008
Subject Context,
Fetus

TID 5005
Fetal Biometry
Section

TID 5006
Long Bones Section

TID 5008
Fetal Biometry
Group

TID 5011
Early Gestation
Section

TID 99000
Fetal Doppler
Measurements

TID 99100
Doppler Group

TID 99001
Maternal Doppler
Measurements

TID 99002
Fibroid Section

TID 99003
Fibroid Measurement
Group

TID 5009
Fetal Biophysical
Profile Section

TID 5010
Amniotic Sac
Section

TID 5007
Fetal Cranium
Section

TID 5012
Ovaries Section

TID 5013
Follicles Section

TID 5015
Pelvis and Uterus
Section

TID G301
User Defined
Measurements

**16.3.2 TID 5000 Template**

LOGIQ P8/P9/P10 Scanner supports the following template TID 5000 for SOP Instances created by this product when exam types selected are OB and GYN.

**TABLE 16-32 TID 5000**

| | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | EV (125000, DCM, 'OB-GYN Ultrasound Procedure Report') | 1 | M | | |
| 2 | > | HAS OBS CONTEXT | INCLUDE | DTID (1001) Observation Context | 1 | M | | |
| 3 | > | CONTAINS | INCLUDE | DTID (5001) Patient Characteristics | 1 | U | | |
| 4 | > | CONTAINS | INCLUDE | DTID (5002) OB-GYN Procedure Summary Section | 1 | U | | |
| 5 | > | CONTAINS | INCLUDE | DTID (5004) Fetal Biometry Ratio Section | 1-n | U | | |
| 6 | > | CONTAINS | INCLUDE | DTID (5005) Fetal Biometry Section | 1-n | U | | |
| 7 | > | CONTAINS | INCLUDE | DTID (5006) Long Bones Section | 1-n | U | | |
| 8 | > | CONTAINS | INCLUDE | DTID (5007) Fetal Cranium Section | 1-n | U | | |
| 9 | > | CONTAINS | INCLUDE | DTID (5009) Fetal Biophysical Profile Section | 1-n | U | | |
| 10 | > | CONTAINS | INCLUDE | DTID (5011) Early Gestation Section | 1-n | U | | |
| 11 | > | CONTAINS | INCLUDE | DTID (5010) Amniotic Sac Section | 1-n | U | | |
| 12 | > | CONTAINS | INCLUDE | DTID (5015) Pelvis and Uterus Section | 1-n | U | | |
| 13 | > | CONTAINS | INCLUDE | DTID (5012) Ovaries Section | 1-n | U | | |
| 14 | > | CONTAINS | INCLUDE | DTID (5013) Follicles Section | 1-n | U | | $Laterality = EV (G-A101, SRT, 'Left') $Number = EV (11879-4, LN, 'Number of follicles in left ovary') |
| 14 | > | CONTAINS | INCLUDE | DTID (5013) Follicles Section | 1-n | U | | $Laterality = EV (G-A100, SRT, 'Right) $Number = EV (11879-4, LN, 'Number of follicles in left ovary') |
| 15 | > | CONTAINS | INCLUDE | DTID (99000) Fetal Doppler Measurements | 1-n | U | | $Laterality $FindingSite |
| 16 | > | CONTAINS | INCLUDE | DTID (99001) Maternal Doppler Measurement | 1-n | U | | $Laterality $FindingSite |
| 17 | > | CONTAINS | INCLUDE | DTID (99002) Fibroid Section | 1 | U | | $Laterality = EV (G-A101, SRT, "Left") $Number = EV (GEU-1009-07, 99GEMS, "Number of fibroids in left ovary") |
| 18 | > | CONTAINS | INCLUDE | DTID (99002) Fibroid | 1 | U | | $Laterality = EV |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | Section | | | (G-A100, SRT, "Right") $Number = EV (GEU-99009-08, 99GEMS, "Number of fibroids in right ovary") |
| 19 | > | CONTAINS | INCLUDE | DTID (99060) Fetal Anatomy Section | 1-n | U | |

### 16.3.3 TID 5001 OB-GYN Patient Characteristics

**TABLE 16-33 TID 5001**

| | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition / Notes |
|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | EV (12118, DCM, 'Patient Characteristics') | | M | |
| 2 | > | CONTAINS | TEXT | EV (121106, DCM,'Comment') | 1 | U | |
| 3 | > | CONTAINS | NUM | EV (8302-2, LN, 'Patient Height') | 1 | U | |
| 4 | > | CONTAINS | NUM | EV (11996-6, LN, 'Gravida) | 1 | U | See GEU SR Mapping Table xvi |
| 5 | > | CONTAINS | NUM | EV (11977-6, LN,'Para') | 1 | U | See GEU SR Mapping Table xvi |
| 6 | > | CONTAINS | NUM | EV (11612-9,LN,'Aborta') | 1 | U | See GEU SR Mapping Table xvi |
| 7 | > | CONTAINS | NUM | EV (33065-4, LN, 'Ectopic Pregnancies') | 1 | U | See GEU SR Mapping Table xvi |

### 16.3.4 GEU SR Mapping Table for Patient Characteristics:

**TABLE 16-34 GEU SR MAPPING TABLE FOR PATIENT CHARACTERISTICS**

| Name of GEU parameter | Base Measurement Concept Name |
|---|---|
| Gravida | (11996-6, LN, 'Gravida') |
| Para | (11977-6, LN, 'Para') |
| Abortion | (11612-9, LN, 'Aborta') |
| Ectopic | (33065-4, LN, 'Ectopic Pregnancies') |

### 16.3.5 TID 5002 OB-GYN Procedure Summary Section

**TABLE 16-35 TID 5002**

| | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | DT(121111, DCM, 'Summary') | 1 | M | | |
| 2 | > | CONTAINS | DATE | DCID (12003) OB-GYN Dates | 1-n | U | | |
| 3 | > | CONTAINS | INCLUDE | DTID (300) Measurement | 1-n | U | | $Measurement= BCID (12018) OB-GYN Summary |
| 4 | > | CONTAINS | TEXT | EV (121106, DCM, 'Comment') | 1-n | U | | |
| 5 | > | CONTAINS | INCLUDE | BTID (5003) OB-GYN Fetus Summary | 1-n | UC | No more than 1 inclusion per fetus | |

### 16.3.6 Usage of TID 5003 OB-GYN Fetus Summary

**TABLE 16-36 TID 5003**

|   | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|----|----------------------|------------|--------------|-----|----------|-----------|----------------------|
| 1 |    |                      | CONTAINER  | DT (125008, DCM, 'Fetus Summary') | 1 | M | | |
| 2 | >  | HAS OBS CONTEXT      | INCLUDE    | DTID (1008) Subject Context, Fetus | 1 | MC | To describe n fetus, invokes this template n times | |

### 16.3.7 GEU Parameters Map from TID 5009 Fetal Biophysical Profile Section

**TABLE 16-37 GEU PARAMETERS MAP FROM TID 5009**

| Name of GEU parameter | Base Measurement Concept Name |
|------------------------|-------------------------------|
| OB/Biophysical/movement | (11631-9, LN, 'Gross Body Movement') |
| OB/Biophysical/tone | (11635-0, LN, 'Fetal Tone') |
| OB/Biophysical/breathing | (11632-7, LN, 'Fetal Breathing') |
| OB/Biophysical/fluid | (11630-1, LN, 'Amniotic Fluid Volume') |
| OB/Biophysical/reactiveNst | (11635-5, LN, 'Fetal Heart Reactivity') |
| OB/Biophysical/score | (11634-3, LN, 'Biophysical Profile Sum Score') |

### 16.3.8 GEU Parameters Map from Context ID 12019 OB-GYN Fetus Summary

**TABLE 16-38 CONTEXT ID 12019**

| Name of GEU parameter | Base Measurement Concept Name |
|------------------------|-------------------------------|
| OB/CUA | (11888-5, LN, Composite Ultrasound Age) |
| EFW(AC,BPD) | (11727-5, LN, 'Estimated Weight') |
| EFW(Hadlock)-GP | (GEU-1009-10, 99GEMS, "EFW(Hadlock)-GP") |
| EFW(Brenner)-GP | (GEU-1009-11, 99GEMS, "EFW(Brenner)-GP") |
| EFW(Williams)-GP | (GEU-1009-12,99GEMS, "EFW(Williams)-GP") |
| Ultrasound EDD(CUA) | (GEU-1009-04,99GEMS,"EDD from composite ultrasound age") |
| Ultrasound EDD(AUA) | (11781-2,LN,"EDD from average ultrasound age") |
| Clinical Age(LMP) | (11885-1,LN,"Gestational Age by LMP") |
| Clinical Age(EDD) | (GEU-1009-05,99GEMS,"Gestational Age by EDD") |

### 16.3.9 GEU Parameter Map from Context ID 12011 Ultrasound Pelvis and Uterus

**TABLE 16-39 CONTEXT ID 12011**

| Name of GEU parameter | Base Measurement Concept Name |
|------------------------|-------------------------------|
| Gyn/2D/UtL | (11842-2, LN, Uterus Length) |
| Gyn/2D/UtH | (11859-6, LN, Uterus Height) |
| Gyn/2D/UtW | (11865-3, LN, Uterus Width) |
| Gyn/2D/UtVolume | (33192-6, LN, Uterus Volume) |
| Gyn/2D/Endo | (12145-9, LN, 'Endometrium Thickness') |
| Ob/2D/OvL with Side=Rt | (11841-4, LN, 'Right Ovary Length') |
| Ob/2D/OvH with Side=Rt | (11858-8, LN, 'Right Ovary Height') |
| Ob/2D/OvW with Side=Rt | (11830-7, LN, 'Right Ovary Width') |

| | |
|---|---|
| Ob/2D/OvVolume with Side=Rt | (12165-7, LN, 'Right Ovary Volume') |
| Ob/2D/OvL with Side=Lt | (11840-6, LN, 'Left Ovary Length') |
| Ob/2D/OvH with Side=Lt | (11857-0,LN, 'Left Ovary Height') |
| Ob/2D/OvW with Side=Lt | (11829-9, LN, 'Left Ovary Width') |
| Ob/2D/OvVolume with Side=Lt | (12164-0, LN, 'Left Ovary Volume') |
| Gyn/2D/OvFoVolume/Volume | (G-D705, SRT, 'Volume') |

### 16.3.10   GEU Parameter Map from Context ID 12005 Fetal Biometry Measurements

**TABLE 16-40 CONTEXT ID 12005**

| Name of GEU parameter | Base Measurement Concept Name |
|---|---|
| BPD | (11820-8, LN, 'Biparietal Diameter') |
| AC | (11979-2, LN, 'Abdominal Circumference') |
| OFD | (11851-3, LN, 'Occipital-Frontal Diameter') |
| FL | (11963-6, LN, 'Femur Length') |
| HC | (11984-2, LN, 'Head Circumference') |
| TAD | (11862-0, LN, 'Transverse Abdominal Diameter') |
| TCD | (11863-8, LN, 'Trans Cerebellar Diameter') |
| TTD | (11864-6, LN, 'Transverse Thoracic Diameter') |
| Ft | (11965-1, LN, 'Foot length') |
| FTA | (33068-8, LN, 'Thoracic Area') |
| APTD | (11819-0, LN, 'Anterior-Posterior Trunk Diameter') |
| CM | (11860-4,"Cisterna Magna length",LN) |
| NT | (11860-4,"Cisterna Magna length",LN) |
| NFT | (33069-6,"Nuchal Translucency",LN) |

### 16.3.11   GEU Parameter Map from Context ID 12004 Fetal Biometry Ratios

**TABLE 16-41 CONTEXT ID 12004**

| Name of GEU parameter | Base Measurement Concept Name |
|---|---|
| Ratio HC/AC | (11947-9, LN, 'HC/AC') |
| Ratio FL/BPD | (11872-9, LN, 'FL/BPD') |
| Ratio FL/AC | (11871-1, LN, 'FL/AC') |
| Ratio FL/HC | (11873-7, LN, 'FL/HC') |
| CI | (11823-2, LN, 'Cephalic Index') |

### 16.3.12   GEU Parameter Map from Context ID 12006 Fetal Long Bones Measurement

**TABLE 16-42 CONTEXT ID 12006**

| Name of GEU parameter | Base Measurement Concept Name |
|---|---|
| FL | (11963-6, LN, 'Femur Length') |
| HL | (11966-9, LN, 'Humerus length') |
| ULNA | (11969-3, LN, 'Ulna length') |
| TIB | (11968-5, LN, 'Tibia length') |
| FIB | (11964-4, LN, 'Fibula length') |

| Radius | (11967-7, LN, 'Radius length') |
|---|---|
| CLA | (11962-8, LN, 'Clavicle length') |

### 16.3.13 GEU Parameter Map from Context ID 12013 Gestational Age Equations and Tables

**TABLE 16-43 CONTEXT ID 12013**

| Name of GEU parameter | Base Measurement Concept Name |
|---|---|
| OB/Campbell/Ratio HC/AC-Min | (33182-7, LN, 'HC/AC by GA, Campbell 1977') |
| OB/Campbell/Ratio HC/AC-Max | (33182-7, LN, 'HC/AC by GA, Campbell 1977') |
| OB/Jeanty/BPD-GP | (33153-8, LN, 'BPD by GA, Jeanty 1982') |
| OB/Jeanty/HC-GP | (33175-1, LN, 'HC by GA, Jeanty 1982') |
| OB/Jeanty/FL-GP | (33168-6, LN, 'FL by GA, Jeanty 1982') |
| OB/Hadlock/BPD-GP | (33198-3, LN, 'BPD by GA, Hadlock 1984') |
| OB/Hadlock/AC-GP | (33146-2, LN, 'AC by GA, Hadlock 1984') |
| OB/Hadlock/HC-GP | (33173-6, LN, 'HC by GA, Hadlock 1984') |
| OB/Hadlock/FL-GP | (33166-0, LN, 'FL by GA, Hadlock 1984') |
| OB/ASUM/BPD-GA | (33079-5, LN, 'BPD, ASUM 1989') |
| OB/ASUM/CRL-GA | (33089-4, LN, 'CRL, ASUM 1991') |
| OB/ASUM/AC-GA | (33072-0, LN, 'AC, ASUM 2000') |
| OB/ASUM2000/BPD-GA | (33151-2, LN, "BPD, ASUM 2000") |
| Eriksen/TAD-GA | (33128-0, LN, 'TAD, Eriksen 1985') |
| OB/Goldstein/TCD-GA | (33133-0, LN, 'TCD, Goldstein 1987') |
| OB/Hohler/FL-GA | (11922-2, LN, 'FL, Hohler 1982') |
| OB/Jeanty/CRL-GA | (33092-8, LN, 'CRL, Jeanty 1982') |
| OB/Jeanty/BPD-GA | (33539-8, LN, 'BPD, Jeanty 1982') |
| OB/Jeanty/AC-GA | (33537-2, LN, 'AC, Jeanty 1982') |
| OB/Jeanty/HC-GA | (33113-2, LN, 'HC, Jeanty 1982') |
| OB/Jeanty/FL-GA | (33099-3, LN, 'FL, Jeanty 1982') |
| OB/Jeanty/ULNA-GA | (11944-6, LN, 'Ulna, Jeanty 1984') |
| OB/Jeanty/HL-GA | (11936-2, LN, 'Humerus, Jeanty 1984') |
| OB/Jeanty/TIB-GA | (11941-2, LN, 'Tibia, Jeanty 1984') |
| OB/Jeanty/FIB-GA | (33097-7, LN, 'Fibula, Jeanty 1983') |
| OB/Jeanty/Radius-GA | (33126-4, LN, 'Radius, Jeanty 1983') |
| OB/Merz/BPD-GA | (33081-1, LN, 'BPD, Merz 1988') |
| OB/Merz/AC-GA | (33075-3, LN, 'AC, Merz 1988') |
| OB/Merz/HC-GA | (33115-7, LN, 'HC Merz, 1988') |
| OB/Merz/FL-GA | (33542-2, LN, 'FL, Merz 1988') |
| OB/Hadlock/BPD-GA | (11902-4, LN, 'BPD, Hadlock 1984') |
| OB/Hadlock/AC-GA | (11892-7, LN, 'AC, Hadlock 1984') |
| OB/Hadlock/HC-GA | (11932-1, LN, 'HC, Hadlock 1984') |
| OB/Hadlock/FL-GA | (11920-6, LN, 'FL, Hadlock 1984') |
| OB/Hadlock/CRL-GA | (11910-7, LN, 'CRL, Hadlock 1992') |
| OB/Hansmann/GS-GA | (33105-8, LN, 'GS, Hansmann 1979') |
| OB/Hansmann/BPD-GA | (11903-2, LN, 'BPD, Hansmann 1985') |
| OB/Hansmann/CRL-GA | (11911-5, LN, 'CRL, Hansmann 1985') |

| | |
|---|---|
| OB/Hansmann/OFD-GA | (33544-8, LN, 'OFD, Hansmann 1985') |
| OB/Hansmann/HC-GA | (33112-4, LN, 'HC, Hansmann 1985') |
| OB/Hansmann/TAD-GA | (33129-8, LN, 'TAD Hansmann, 1979') |
| OB/Hansmann/ThD-GA | (33136-3, LN, 'Transverse Thoracic Diameter, Hansmann 1985') |
| OB/Hansmann/FL-GA | (11921-4, LN, 'FL, Hansmann 1985') |
| OB/Hansmann/AC-GA | (33073-8, LN, 'AC, Hansmann 1985') |
| OB/Hellman/GS-GA | (11928-9, LN, 'GS, Hellman 1969') |
| OB/Rempen/GS-GA | (11929-7, LN, 'GS, Rempen 1991') |
| OB/Rempen/CRL-GA | (33094-4, LN, 'CRL, Rempen 1991') |
| OB/Rempen/BPD-GA | (33083-7, LN, 'BPD, Rempen 1991') |
| OB/Hill/TCD-GA | (33134-8, LN, 'TCD, Hill 1990') |
| OB/Mercer/Ft-GA | (11926-3, LN, 'Foot Length, Mercer 1987') |
| OB/Kurtz/BPD-GA | (11906-5, LN, 'BPD, Kurtz 1980') |
| OB/Nelson/CRL-GA | (11913-1, LN, 'CRL, Nelson 1981') |
| OB/Robinson/CRL-GA | (11914-9, LN, 'CRL, Robinson 1975') |
| OB/Mayden/OOD-GA | (33124-9, LN, 'OOD, Mayden, 1982') |
| OB/Mayden/IOD-GA | (33122-3, LN, 'IOD, Mayden 1982') |
| OB/Yarkoni/CLA-GA | (33088-6, LN, 'Clavical length,Yarkoni 1985') |
| OB/Osaka/CRL-GA | (33093-6, LN, 'CRL, Osaka 1989') |
| OB/Osaka/BPD-GA | (33082-9, LN, 'BPD, Osaka 1989') |
| OB/Osaka/FL-GA | (33101-7, LN, 'FL, Osaka 1989') |
| OB/Osaka/HL-GA | (33117-3, LN, 'Humerus Length, Osaka 1989') |
| OB/Tokyo/GS-GA | (33108-2, LN, 'GS, Tokyo 1986') |
| OB/Tokyo/CRL-GA | (33096-9, LN, 'CRL, Tokyo 1986') |
| OB/Tokyo/BPD-GA | (33085-2, LN, 'BPD, Tokyo 1986') |
| OB/Tokyo/FL-GA | (33103-3, LN, 'FL, Tokyo 1986') |
| OB/Shinozuka/BPD-GA | (33084-5, LN, 'BPD, Shinozuka 1996') |
| OB/Shinozuka/AC-GA | (33076-1, LN, 'AC, Shinozuka 1996') |
| OB/Shinozuka/FL-GA | (33102-5, LN, 'FL, Shinozuka 1996') |
| OB/Shinozuka/CRL-GA | (33095-1, LN, 'CRL, Shinozuka 1996') |
| average | (11884-4, LN, 'Average Ultrasound Age') |

### 16.3.14 GEU Parameter Map from Context ID 12009 Early Gestation Biometry

**TABLE 16-44 CONTEXT ID 12009**

| Name of GEU parameter | Standard Concept Name |
|---|---|
| CRL | (11957-8, LN, 'Crown Rump Length') |
| GS | (11850-5, LN, 'Gestational Sac Diameter') |
| NT | (33069-6, LN, 'Nuchal Translucency') |

### 16.3.15 GEU Parameter Map from Context ID 12008 OB-GYN Amniotic Sac

**TABLE 16-45 CONTEXT ID 12008**

| Name of GEU parameter | Measurement Concept Name |
|---|---|
| AFI1 | (11624-4, LN, 'First Quadrant Diameter') |
| AFI2 | (11626-9, LN, 'Second Quadrant Diameter') |

| AFI3 | (11625-1, LN, 'Third Quadrant Diameter') |
|------|------------------------------------------|
| AFI4 | (11623-6, LN, 'Fourth Quadrant Diameter') |
| AFI Sum | (11627-7, LN, 'Amniotic Fluid Index') |

### 16.3.16 GEU Parameters Map to Context ID 226 Population Statistical Descriptors

**TABLE 16-46 CONTEXT ID 226**

| Name of GEU parameter | Base Measurement Concept Name |
|-----------------------|-------------------------------|
| OB/ASUM/BPD-Min<br>OB/ASUM/AC-Min<br>OB/ASUM2000/BPD-Min<br>OB/ASUM2000/AC-Min<br>OB/Jeanty/AC-Min<br>OB/Hadlock/HC-Min<br>OB/Hadlock/FL-Min<br>OB/Hansmann/BPD-Min<br>OB/Hansmann/CRL-Min<br>OB/Hansmann/OFD-Min<br>OB/Hansmann/HC-Min | (R-00388, SRT, '2 Sigma Lower Value of population') |
| OB/ASUM/BPD-Max<br>OB/ASUM/AC-Max<br>OB/ASUM2000/BPD-Max<br>OB/ASUM2000/AC-Max<br>OB/Jeanty/AC-Max<br>OB/Hadlock/HC-Max<br>OB/Hadlock/FL-Max<br>OB/Hansmann/BPD-Max<br>OB/Hansmann/CRL-Max<br>OB/Hansmann/OFD-Max<br>OB/Hansmann/ThD-Max<br>OB/Hansmann/FL-Max<br>OB/Rempen/GS-Max<br>OB/Mercer/Ft-Max<br>OB/Rempen/CRL-Max | (R-00387, SRT, '2 Sigma Upper Value of population') |
| OB/Eriksen/TAD-Min<br>OB/Jeanty/CRL-Min<br>OB/Hadlock/CRL-Min<br>OB/Hansmann/TAD-Min<br>OB/Hansmann/AC-Min<br>OB/Hellman/GS-Min<br>OB/Hansmann/ThD-Min<br>OB/Hansmann/FL-Min<br>OB/Rempen/GS-Min<br>OB/Rempen/CRL-Min<br>OB/Mercer/Ft-Min | (R-00347, SRT, '1 Sigma Lower Value of population') |
| OB/Eriksen/TAD-Max<br>OB/Jeanty/CRL-Max<br>OB/Hansmann/HC-Max<br>OB/Hadlock/CRL-Max<br>OB/Hansmann/TAD-Max<br>OB/Hansmann/AC-Max<br>OB/Hellman/GS-Max | (R-00346, SRT, '1 Sigma Upper Value of population') |
| OB/Jeanty/BPD-Min<br>OB/Jeanty/HC-Min<br>OB/Jeanty/FL-Min<br>OB/Jeanty/ULNA-Min<br>OB/Jeanty/HL-Min<br>OB/Jeanty/TIB-Min<br>OB/Merz/BPD-Min<br>OB/Merz/AC-Min | (R-00397, SRT, '5th Percentile Value of population') |

| | |
|---|---|
| OB/Merz/HC-Min<br>OB/Merz/FL-Min<br>OB/Hadlock/BPD-Min<br>OB/Hadlock/AC-Min | |
| OB/Jeanty/BPD-Max<br>OB/Jeanty/HC-Max<br>OB/Jeanty/FL-Max<br>OB/Jeanty/ULNA-Max<br>OB/Jeanty/HL-Max<br>OB/Jeanty/TIB-Max<br>OB/Merz/BPD-Max<br>OB/Merz/AC-Max<br>OB/Merz/HC-Max<br>OB/Merz/FL-Max<br>OB/Hadlock/BPD-Max<br>OB/Hadlock/AC-Max | (R-00337, SRT, '95th Percentile Value of population') |
| standard deviation | (121414, DCM, "Standard deviation of population") |

### 16.3.17 GEU Parameters Map to Context ID 12015 Fetal Growth Equations and Tables

**TABLE 16-47 CONTEXT ID 12015**

| Name of GEU parameter | Base Measurement Concept Name |
|---|---|
| OB/Jeanty/FIB-GP | (33164-5, LN, 'Fibula by GA, Jeanty 1983') |
| OB/Jeanty/Radius-GP | (33180-1, LN, 'OB/Jeanty/Radius-GP') |
| OB/Merz/BPD-GP | (33154-6, LN, 'BPD by GA, Merz 1988') |
| OB/Merz/AC-GP | (33148-8, LN, 'AC by GA, Merz 1988') |
| OB/Merz/HC-GP | (33176-9, LN, 'HC by GA, Merz 1988') |
| OB/Merz/FL-GP | (33169-4, LN, 'FL by GA, Merz 1988') |
| OB/Hansmann/TTD-GA | (33136-3, LN, 'Transverse Thoracic Diameter, Hansmann 1985') |
| OB/Rempen/GS-GP | (33171-0, LN, 'GS by GA, Rempen 1991') |
| OB/Rempen/CRL-GP | (33160-3, LN, 'CRL by GA, Rempen1991') |
| OB/Rempen/BPD-GP | (33155-3, LN, 'BPD by GA, Rempen 1991') |
| OB/ASUM2000/OFD-GA | (33119-9, LN, 'OFD, ASUM 2000') |
| OB/ASUM2000/CRL-GA | (33090-2, LN, 'CRL, ASUM 2000') |
| OB/ASUM2000/HC-GA | (33109-0, LN, 'HC, ASUM 2000') |
| OB/ASUM2000/AC-GA | (33072-0, LN, 'AC, ASUM 2000') |
| OB/ASUM2000/HL-GA | (33116-5, LN, 'Humerus Length, ASUM 2000') |

### 16.3.18 GEU Parameters Map to Context ID 225 Measurement Uncertainty Concepts

**TABLE 16-48 CONTEXT ID 225**

| Name of GEU parameter | Base Measurement Concept Name |
|---|---|
| +/- , range of measurement uncertainty | (R-00363, SRT, "+/- , Range of measurement uncertainty") |
| + , range of upper measurement uncertainty | (R-00364, SRT, "+ , Range of upper measurement uncertainty") |
| - , range of lower measurement uncertainty | (R-00362, SRT, "- , Range of lower measurement uncertainty") |

### 16.3.19 Context ID 3627 Extended Measurement Types

**TABLE 16-49 CONTEXT ID 3627**

| GEU parameter attribute | Concept Modifier or Has Properties |
|---|---|
| Aver | (121401, DCM, 'Derivation') = (R-00317, SRT, 'Mean') |
| Max | (121401, DCM, 'Derivation') = (G-A437, SRT, 'Maximum') |
| Min | (121401, DCM, 'Derivation') = (R-404FB, SRT, 'Minimum') |
| Last | (121404, DCM, 'Selection Status') = (121411, DCM, 'Most recent value chosen') |
| 'C' | (121401, DCM, 'Derivation') = (121428, DCM, 'Calculated') |

### 16.3.20  Miscellaneous GEU Parameters Map to SR Coding Standards

#### TABLE 16-50 MISCELLANEOUS GEU PARAMETERS MAP

| Name of GEU parameter | Base Measurement Concept Name |
|---|---|
| GA | (18185-9, LN, Gestational Age) |
| GP | (125012, DCM, Growth Percentile Rank) |
| OOR | (114009,DCM, Value out of range) |
| Side=Rt | (G-A100, SRT, Right) |
| Side=Lt | (G-A101, SRT, Left) |

### 16.3.21  TID 99000 Fetal Doppler Measurements

#### TABLE 16-51 TID 99000 FETAL DOPPLER MEASUREMENTS

| | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value set |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | DT(99000, DCM, "Fetal Doppler" | 1 | M | | |
| 2 | > | HAS OBS CONTEXT | INCLUDE | DTID(1008) Subject Context, Fetus ID | 1 | MC | If this template is invoked more than once to describe more than one fetus | |
| 3 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-45510, SNM3 "Cerebral artery"); $Laterality= EV(G-A101, SRT, "Left"); $TargetSiteMod = EV(G-A113, SNM3, "Internal") $MeasType = MemberOf DCID(9900) |
| 4 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-45510, SNM3 "Cerebral artery"); $Laterality=EV(G-A100, SRT, "Right"); $TargetSiteMod = EV(G-A113, SNM3, "Internal") $MeasType = MemberOf DCID(9900) |
| 5 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-46420, SNM3, "Hepatic |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Artery"); $MeasType = MemberOf DCID(9900) |
| 6 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-48720, SNM3, "Hepatic Vein"); $MeasType = MemberOf DCID(9900) |
| 7 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-48710, SNM3, "Inferior Vena Cava"); $MeasType = MemberOf DCID(9900) |
| 8 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-46600, SNM3, "Renal artery"); $Laterality = EV(G-A100, SRT, "Right"); $MeasType = MemberOf DCID(9900) |
| 9 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-46600, SNM3, "Renal artery"); $Laterality = EV(G-A101, SRT, "Left"); $MeasType = MemberOf DCID(9900) |
| 10 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-46460, SNM3, "Splenic artery"); $MeasType = MemberOf DCID(9900) |
| 11 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-42070, SNM3, "Thoracic aorta"); $MeasType = MemberOf DCID(9900) |
| 12 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-F1810, SNM3, "Umbilical artery"); $MeasType = MemberOf DCID(9900) |
| 13 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-48817, SNM3, "Umbilical vein"); $MeasType = |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | MemberOf DCID(9900) |
| 14 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(VP-0001, 99VP, "Ductus venosus vein"); $MeasType = MemberOf DCID(9900) |
| 15 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-45010, SNM3, "Carotid artery"); $Laterality = EV(G-A100, SRT, "Right"); $MeasType = MemberOf DCID(9900) |
| 16 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $TargetSite = EV(T-45010, SNM3, "Carotid artery"); $Laterality = EV(G-A100, SRT, "Right"); $MeasType = MemberOf DCID(9900) |
| 17 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $TargetSite = EV(T-F1412, SRT, "Vitelline Artery of Placenta"); $MeasType = MemberOf DCID(9900) |
| 18 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-45600, SRT, "Middle Cerebral Artery"); $Laterality = EV(G-A100, SRT, "Right"); $MeasType = MemberOf DCID(9900) |
| 19 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-45600, SRT, "Middle Cerebral Artery"); $Laterality = EV(G-A100, SRT, "Right"); $MeasType = MemberOf DCID(9900) |
| 20 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-42000, SRT, "Aorta"); $MeasType = MemberOf DCID(9900) |

### 16.3.22 TID 99001 Maternal Doppler Measurements

**TABLE 16-52 TID 99001 MATERNAL DOPPLER MEASUREMENTS**

| | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | DT(99001, DCM, "Maternal Doppler Measurements" | 1 | M | | |
| 2 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-46820, SRT, "Uterine artery"); $Laterality = EV(G-A100, SRT, "Right"); $MeasType = MemberOf DCID(9900) |
| 3 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-46820, SRT, "Uterine artery"); $Laterality = EV(G-A101, SRT, "Left"); $MeasType = MemberOf DCID(9900) |
| 4 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-46980, SRT, "Ovarian artery"); $Laterality = EV(G-A100, SRT, "Right"); $MeasType = MemberOf DCID(9900) |
| 5 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-46980, SRT, "Ovarian artery"); $Laterality = EV(G-A101, SRT, "Left"); $MeasType = MemberOf DCID(9900) |
| 6 | > | CONTAINS | INCLUDE | DTID(99100) Doppler Group | 1 | U | | $FindingSite = EV(T-40003, SRT, "Entire Vessel"); $MeasType = MemberOf DCID(9900) |

### 16.3.23 TID 99100 Doppler Group

**TABLE 16-53 TID 99100 DOPPLER GROUP**

| | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | DT(99100, DCM, "Doppler Group") | 1 | M | | |
| 2 | > | CONTAINS | INCLUDE | DTID (300) Measurement | 1-n | M | | $Measurement = $MeasType |

### 16.3.24 TID 99002 Fibroid Section

**TABLE 16-54 TID 99002 FIBROID SECTION**

| | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|

| 1 |  |  | CONTAINER | DT(121070, DCM, "Findings" | 1 | M |  |  |
|---|---|---|---|---|---|---|---|---|
| 2 | > | HAS CONCEPT MOD | CODE | EV(G-C0E3, SRT, "Finding Site") | 1 | M |  | DT(GEU-1009-06, 99GEMS, "Fibroid") |
| 3 | > | CONTAINS | NUM | $Number | 1 | M |  | Number of Fibroids |
| 4 | > | CONTAINS | INCLUDE | DTID (99003) Fibroid Measurement Group | 1-n | U |  |  |

### 16.3.25　TID 99003 Fibroid Measurement Group

**TABLE 16-55 TID 99003 FIBROID MEASUREMENT GROUP**

|  | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 |  |  | CONTAINER | EV(125007, DCM, "Measurement Group" | 1 | M |  |  |
| 2 | > | HAS OBS CONTEXT | TEXT | EV(12510, DCM, "Identifier") | 1 | U |  | Unique among all groups of same laterality |
| 3 | > | CONTAINS | INCLUDE | DTID (300) Measurement | 1-n | U |  | $Measurement = EV (G-D705, SRT, "Volume") |
| 4 | > | CONTAINS | INCLUDE | DTID (300) Measurement | 1-n | M |  | $Measurement = EV(GEU-1009-09, 99GEMS, "Fibroid Diameter") $Derivation = DCID (3627) Measurement Type |

### 16.3.26　TID 99060 Fetal Anatomy Section

**TABLE 16-56 TID 99060 FETAL ANATOMY SECTION**

|  | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 |  |  | CONTAINER | EV(GEU-1009-01, 99GEMS, "Fetal Anatomy" | 1 | M |  |  |
| 2 | > | HAS OBS CONTEXT | TEXT | EV(121030, DCM, "Subject ID") | 1 | U |  |  |
| 3 | > | HAS OBS CONTEXT | NUM | EV(11878-6, LN, "Number of Fetuses") | 1 | U |  |  |
| 4 | > | CONTAINS | TEXT | EV(GEU-1009-02, 99GEMS, "Fetus Position") | 1 | U |  |  |
| 5 | > | CONTAINS | TEXT | EV(GEU-1009-03, 99GEMS, "Placenta Position") | 1 | U |  |  |

## 16.4 BREAST IMAGING REPORT

This section describes the contents of the Breast Imaging Report (TID 4200) SR.

### 16.4.1 Breast Imaging Report Template Structure supported by LOGIQ P8/P9/P10 Scanner
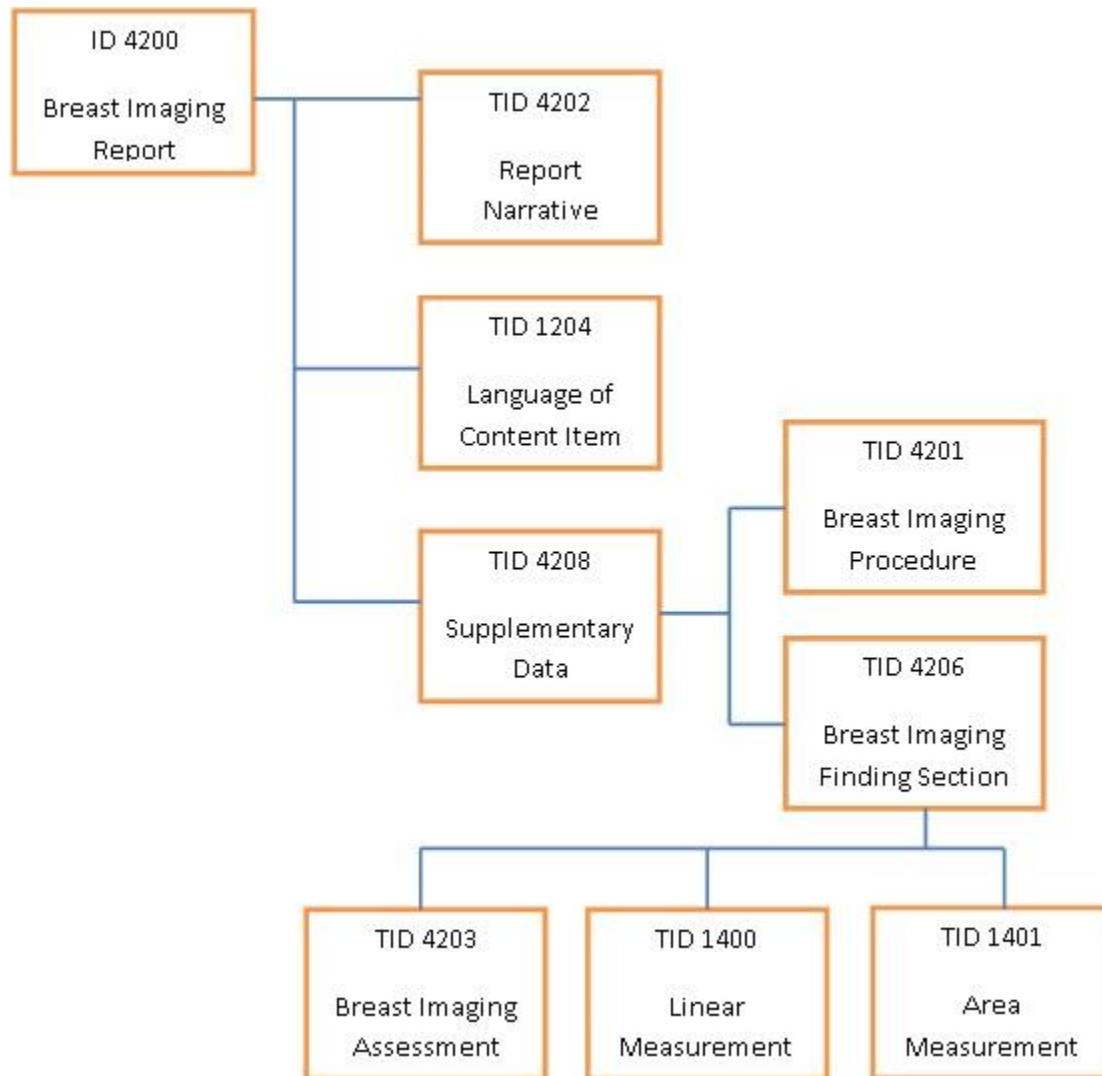


### 16.4.2 TID 4200 Breast Imaging Report

**TABLE 16-57 TID 4200**

| | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | EV (111400, DCM, "Breast Imaging Report") | 1 | M | | |
| 2 | > | HAS CONCEPT MOD | INCLUDE | DTID (1204) Language of Content Item and Descendants | 1 | M | | |
| 3 | > | CONTAINS | INCLUDE | DTID (4202) Breast Imaging Report Narrative | 1 | M | | |
| 4 | > | CONTAINS | INCLUDE | DTID (4208) | 1 | U | | |

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| | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| | | | | Breast Imaging Report Supplementary Data | | | | |

### 16.4.3 TID 4201 Breast Imaging Procedure Reported

**TABLE 16-58 TID 4201**

| | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | CODE | EV (121058, DCM, "Procedure reported") | 1 | M | | (P5-B8500,SRT, "Ultrasonography of breast") | |
| 2 | > | HAS CONCEPT MOD | CODE | EV (G-C171, SRT, "Laterality") | 1 | M | | **GE Value** | **DICOM Map** |
| | | | | | | | | Lt | (T-04030, SRT, "Left breast") |
| | | | | | | | | Rt | (T-04020, SRT, "Right breast") |

### 16.4.4 TID 4202 Breast Imaging Report Narrative

**TABLE 16-59 TID 4202**

| | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | EV (111412, DCM, "Narrative Summary" | 1 | M | | |
| 2 | > | CONTAINS | CONTAINER | (121058, DCM, "Procedure reported") | 1-n | M | | |
| 3 | >> | CONTAINS | TEXT | EV (121058, DCM, "Procedure reported") | 1 | M | | "Ultrasonography of breast" |

### 16.4.5 TID 4203 Breast Imaging Assessment

**TABLE 16-60 TID 4203**

| | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CODE | EV (111005, DCM, "Assessment Category") | 1 | M | | DCID (6027) Mammography Assessment |

### 16.4.6 TID 4206 Breast Imaging Report Finding Section

**TABLE 16-61 TID 4206**

| | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | EV (121070, DCM, "Findings") | 1 | M | | |
| 2 | > | CONTAINS | INCLUDE | DTID (4201) Breast Imaging Procedure Reported | 1 | M | | |

| | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | > | CONTAINS | CODE | EV (121071, DCM, "Finding") | 1-n | M | | **GE Value for Composition** | **DICOM Map** | |
| | | | | | | | | - | (GEU-1006-01, 99GEMS, "Lesion") | |
| | | | | | | | | Solid | ( 111462, DCM, "Solid mass") | |
| | | | | | | | | Cystic | (D7-90360, SRT, "Simple cyst of breast") | |
| | | | | | | | | Complex | (111460, DCM, "Complex cyst") | |
| 4 | >> | HAS PROPERTIES | INCLUDE | DTID (4203) Breast Imaging Assessment | 1 | U | | | | |
| 5 | >> | HAS PROPERTIES | TEXT | (GEU-1006-03, 99GEMS, "Assessment Comment") | 1 | U | | | | |
| 6 | >> | HAS PROPERTIES | CODE | **GE Value** / Position | **DICOM Map** / (111014, DCM, "Clockface or region") | 1 | U | | **GE Value** | **DICOM Map** | |
| | | | | | | | | 1 OClock | (F-01781, SRT, 1 o'clock position) | |
| | | | | | | | | 2 OClock | (F-01782, SRT, 2 o'clock position) | |
| | | | | | | | | 3 OClock | (F-01783, SRT, 3 o'clock position) | |
| | | | | | | | | 4 OClock | (F-01784, SRT, 4 o'clock position) | |
| | | | | | | | | 5 OClock | (F-01785, SRT, 5 o'clock position) | |
| | | | | | | | | 6 OClock | (F-01786, SRT, 6 o'clock position) | |
| | | | | | | | | 7 OClock | (F-01787, SRT, 7 o'clock position) | |
| | | | | | | | | 8 OClock | (F-01788, SRT, 8 o'clock position) | |
| | | | | | | | | 9 OClock | (F-01789, SRT, 9 o'clock position) | |
| | | | | | | | | 10 OClock | (F-0178A, SRT, 10 o'clock position) | |
| | | | | | | | | 11 OClock | (F-0178B, SRT, 11 o'clock position) | |
| | | | | | | | | 12 OClock | (F-0178C, SRT, 12 o'clock position) | |
| | | | | | | | | Areolar | (F-0178F, SRT, Central region of breast) | |
| | | | | | | | | SubAreolar | (F-0178D, SRT, Subareolar region) | |
| | | | | | | | | Axillary | (F-01794, SRT, Axilla region) | |
| 7 | >> | HAS PROPERTIES | INCLUDE | DTID (1400) Linear Measurement | 1-n | U | | | | |
| 8 | >> | HAS PROPERTIES | INCLUDE | DTID (1401) Area Measurement | 1-n | U | | | | |
| 9 | >> | HAS PROPERTIES | NUM | (GEU-1006-07, 99GEMS, "A/B Ratio(area)") | | U | | | | |
| 10 | >> | HAS PROPERTIES | NUM | (GEU-1006-10, 99GEMS, "A/B Ratio(Diam)") | | U | | | | |
| 11 | >> | HAS PROPERTIES | CODE | **GE Value** / Segment | **DICOM Map** / (111020, DCM, "Depth") | 1 | U | | **GE Value** | **DICOM Map** | |
| | | | | | | | | A | (G-A105, SRT, Anterior) | |
| | | | | | | | | B | (G-A109, SRT, Middle) | |
| | | | | | | | | C | (G-A106, SRT, Posterior) | |

| | NL | Rel with Parent | VT | Concept Name | | VM | Req Type | Condition | Value Set Constraint | |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 | >> | HAS PROPERTIES | CODE | EV (M-020F9, SRT, "Shape") | | 1-n | U | | **GE Value** | **DICOM Code** |
| | | | | | | | | | Oval | (M-02120, SRT, "Ovoid shape (Oval)") |
| | | | | | | | | | Round | (M-02100, SRT, "Round shape") |
| | | | | | | | | | Irregular | (G-A402, SRT, "Irregular") |
| 13 | >> | HAS PROPERTIES | CODE | EV (111037, DCM, Margins") | | 1-n | U | | **GE Value** | **DICOM Map** |
| | | | | | | | | | "Circumscribed" | (F-01741, SRT, "Circumscribed lesion") |
| | | | | | | | | | "Indistinct" | (F-01744, SRT, "Indistinct lesion") |
| | | | | | | | | | "Angular" | (111343, DCM, "Angular margins") |
| | | | | | | | | | "Microlobulated" | (F-01742, SRT, "Microlobulated lesion") |
| | | | | | | | | | "Spiculated" | (F-01745, SRT, "Spiculated lesion") |
| 14 | >> | HAS PROPERTIES | CODE | **GE Value** / Calcifications | **DICOM Map** / (111009, DCM, "Calcification Type") | 1-n | U | | **GE Value** | **DICOM Map** |
| | | | | | | | | | "Macrocalcifications" | (111345, DCM, Macrocalcifications) |
| | | | | | | | | | "Microcalcifications in mass" | (111346, DCM, "Calcifications within a mass") |
| | | | | | | | | | "Microcalcifications out of mass" | (111347, DCM, "Calcifications outside of a mass") |
| 15 | >> | HAS PROPERTIES | CODE | **GE Value** / Special Cases | **DICOM Map** / (G-C189, SRT, "Associated Finding") | 1-n | U | | **GE Value** | **DICOM Map** |
| | | | | | | | | | "Clustered microcysts" | (111129 ,DCM, "Clustered microcysts") |
| | | | | | | | | | "Complicated cysts" | (111130 , DCM, "Complicated cyst") |
| | | | | | | | | | "Mass in or on skin" | (D7-90382, SRT, "Sebaceous cyst of skin of breast") |
| | | | | | | | | | "Foreign body" | (M-30400, SRT, "Foreign body") |
| | | | | | | | | | "Lymph nodesintramammary" | (T-C4351, SRT, "Intra-mammary lymph node") |
| | | | | | | | | | "Lymph nodesaxillary" | (T-C4710, SRT, "Axillary lymph node") |
| 16 | >> | HAS PROPERTIES | CODE | EV (111354, DCM, "Orientation") | | 1 | U | | DCID (6152) Orientation | |
| 17 | >> | HAS PROPERTIES | CODE | EV (111357, DCM, "Lesion boundary") | | 1 | U | | DCID (6153) Lesion boundary | |
| 18 | >> | HAS PROPERTIES | CODE | EV (111360, DCM, "Echo pattern") | | 1 | U | | DCID (6154) Echo pattern | |
| 19 | >> | HAS PROPERTIES | CODE | EV (111366, DCM, "Posterior acoustic features") | | 1 | U | | **GE Value** | **DICOM Map** |
| | | | | | | | | | "No posterior features" | (111367, DCM, "No posterior acoustic features") |
| | | | | | | | | | "Enhancement" | (111368, DCM, "Posterior enhancement") |
| | | | | | | | | | "Shadowing" | (111369, DCM, "Posterior shadowing") |
| | | | | | | | | | "Combined Pattern" | (111370, DCM, "Combined posterior enhancement and shadowing") |

| | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint | |
|---|---|---|---|---|---|---|---|---|---|
| 20 | >> | HAS PROPERTIES | CODE | EV (111371, DCM, "Identifiable effect on surrounding tissues") | 1 | U | | **GE Value** | **DICOM Map** |
| | | | | | | | | "Duct changes" | (GEU-1006-02, 99GEMS, "Duct changes") |
| | | | | | | | | "Cooper ligament changes" | (111111, DCM, "Cooper's ligament changes") |
| | | | | | | | | "Edema" | (F-01743, SRT, "Obscured lesion") |
| | | | | | | | | "Architectural distortion" | (F-01795, SRT, "Architectural distortion of breast") |
| | | | | | | | | "Skin thickening" | (F-0179A, SRT, "Skin thickening of breast") |
| | | | | | | | | "Skin retractionirregularity" | (F-01799, SRT, "Skin retraction of breast") |
| 21 | >> | HAS PROPERTIES | CODE | EV (111372, DCM, "Vascularity") | 1 | U | | **GE Value** | **DICOM Map** |
| | | | | | | | | "Diffuse in surrounding tissue" | (111377, DCM, "Diffusely increased vascularity in surrounding tissue") |
| | | | | | | | | "Not Present or not assessed" | (111373, DCM, "Vascularity not present") |
| | | | | | | | | "Present in Lesion" | (111375, DCM, "Vascularity present in lesion") |
| | | | | | | | | "Adjacent to Lesion" | (111376, DCM, "Vascularity present immediately adjacent to lesion") |

## 16.4.7 TID 4208 Breast Imaging Report Supplementary Data

**TABLE 16-62 TID 4208**

| | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | EV (111414, DCM, "Supplementary Data") | 1 | M | | |
| 2 | > | CONTAINS | INCLUDE | DTID (4201) Breast Imaging Procedure Reported | 1-n | M | | |
| 3 | > | CONTAINS | INCLUDE | DTID (4206) Breast Imaging Report Finding Section | 1-n | U | | |

## 16.4.8 TID 1400 Linear Measurement Template

**TABLE 16-63 TID 1400**

| | NL | Rel with Parent | VT | Concept Name | | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | NUM | **GE Measurement** | **DICOM Map** | 1 | M | | UNITS = DCID(7460) "Units of Linear Measurement" |
| | | | | Length | (G-A22A, SRT, "Length") | | | | |
| | | | | Width | (G-A220, SRT, "Width") | | | | |
| | | | | Height | (121207, DCM, "Height") | | | | |
| | | | | SP/2D/DiamRatioD1 | (GEU-1006-08, 99GEMS, "A/B Ratio(Diam) D1") | | | | |

| NL | Rel with Parent | VT | Concept Name | | VM | Req Type | Cond ition | Value Set Constraint |
|----|-----------------|----|-------------|---|----|----|------|---------------------|
| | | | SP/2D/DiamRatioD2 | (GEU-1006-09, 99GEMS, "A/B Ratio(Diam) D2") | | | | |
| | | | SP/2D/LesionDistToNipple | (121242, DCM, "Distance from nipple") | | | | |

### 16.4.9  TID 1401 Area Measurement Template

**TABLE 16-64 TID 1401**

| NL | Rel with Parent | VT | Concept Name | | VM | Req Type | Condition | Value Set Constraint |
|----|-----------------|----|-------------|---|----|----|------|---------------------|
| 1 | | NUM | **GE Measurement** | **DICOM Map** | 1 | M | | Value   shall be > 0 |
| | | | SP/2D/AreaRatioA1 | (GEU-1006-05, 99GEMS, "A/B Ratio(area) A1") | | | | UNITS = DCID(7461)   "Units of Area Measurement" |
| | | | SP/2D/AreaRatioA2 | (GEU-1006-06, 99GEMS, "A/B Ratio(area) A2") | | | | |
| | | | SP/2D/ACArea | (GEU-1006-11, 99GEMS, "Auto Contour Area") | | | | |

### 16.4.10  TID 1204 Language of Content Item and Descendants

**TABLE 16-65 TID 1204**

| NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|----|-----------------|----|-------------|----|----|------|---------------------|
| 1 | HAS CONCEPT MOD | CODE | (121049,DCM,"Language of Content Item and Descendants") | 1 | M | | (en, RFC3066, "English") |

**16.5 SOFT TISSUE NECK AND HEAD IMAGING REPORT**

This section describes the contents of the Soft Tissue Neck and Head Imaging Report (TID GEMS_US_SP_0100) SR.

**16.5.1 Thyroid Imaging Report Template Structure supported by LOGIQ P8/P9/P10 scanner**
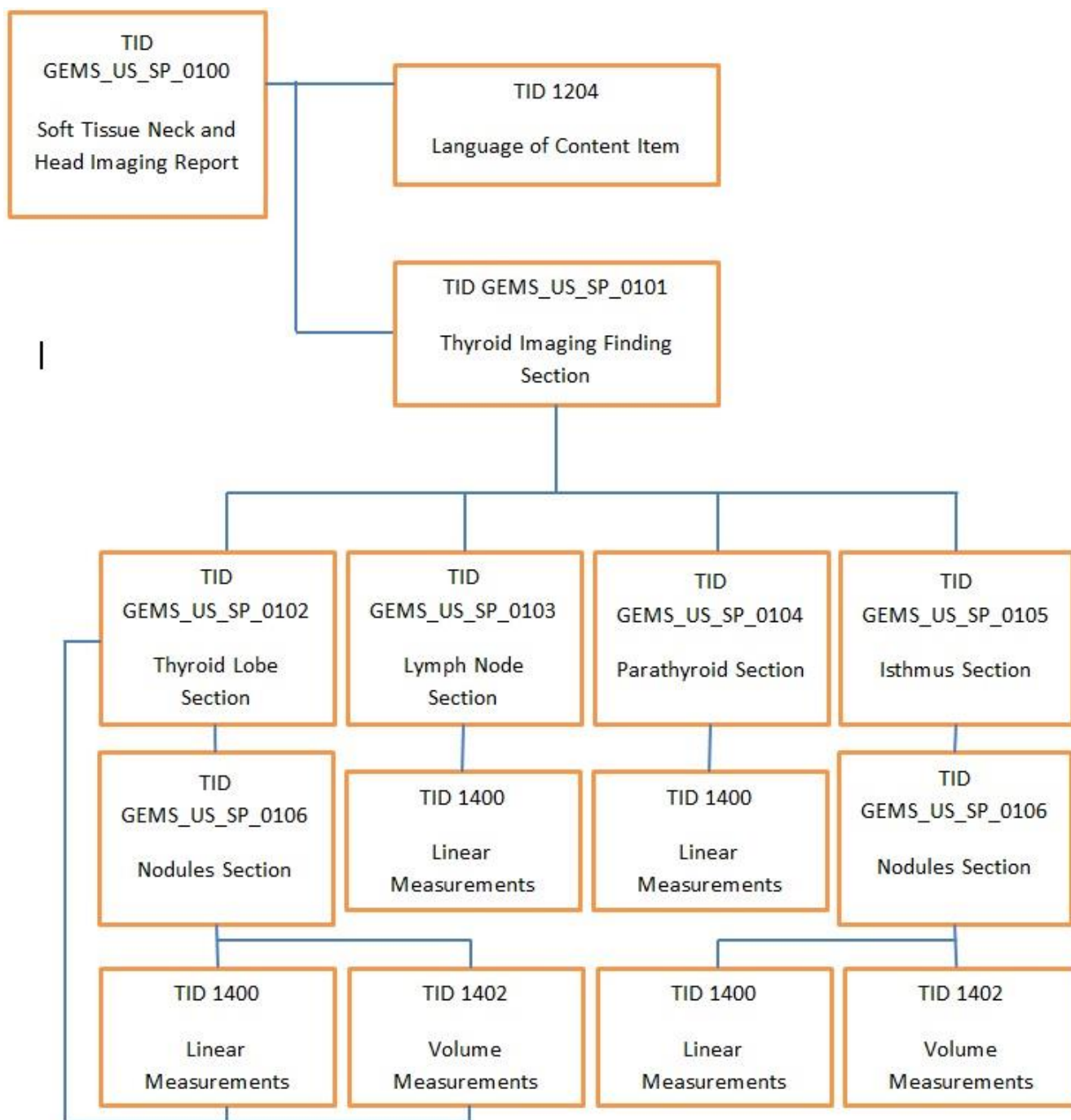


**16.5.2 TID GEMS_US_SP_0100 Soft Tissue Neck and Head Imaging Report**

**TABLE 16-66 GEMS_US_SP_0100**

|  | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 |  |  | CONTAINER | (GEU-1007-01, 99GEMS, " Soft Tissue Neck and Head Imaging Report") | 1 | M |  |  |
| 2 | > | HAS CONCEPT MOD | INCLUDE | DTID (1204) Language of Content Item and Descendants | 1 | M |  |  |
| 3 | > | CONTAINS | INCLUDE | DTID (GEMS_US_SP_0101) Thyroid Imaging Finding Section | 1 | M |  |  |

### 16.5.3 TID GEMS_US_SP_0101 Thyroid Imaging Finding Section

**TABLE 16-67 GEMS_US_SP_0101**

|  | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint | |
|---|---|---|---|---|---|---|---|---|---|
| 1 |  |  | CONTAINER | EV (121070, DCM, "Findings") | 1 | M |  |  | |
| 2 | > | HAS CONCEPT MOD | CODE | EV (G-C0E3, SRT, "Finding Site") | 1 | M |  | EV (T-D1600, SRT, "Neck") | |
| 3 | > | HAS CONCEPT MOD | CODE | EV (G-0373, SRT, "Image Mode") | 1 | M |  | EV (G-03A2, SRT, "2D mode") | |
| 4 | > | CONTAINS | TEXT | EV (121106, DCM, "Comments") | 1 | U |  |  | |
| 5 | > | CONTAINS | CODE | EV(G-C102, SRT, Extent of Resection) | 1 | U |  | **GE Value** / **DICOM Map**: "Totally" — (R-40507, SRT, Total); "Partially" — (R-404FE, SRT, Partial) | |
| 6 | > | CONTAINS | CODE | EV(GEU-1007-04, 99GEMS,"Appearance") | 1 | U |  | **GE Value** / **DICOM Map**: "Within normal limits" — (GEU-1007-75, 99GEMS," Within normal limits"); "Abnormal" — (R-42037, SRT, "Abnormal"); "Symmetric" — (GEU-1007-05, 99GEMS,"Symmetric"); "Asymmetric R>L" — (GEU-1007-76, 99GEMS," Asymmetric R>L"); "Asymmetric L>R" — (GEU-1007-77, 99GEMS," Asymmetric L>R") | |
| 7 | > | CONTAINS | INCLUDE | DTID (GEMS_US_SP_0102) Thyroid Lobe Section | 1 | U |  | $SectionLaterality = EV (G-A101, SRT, "Left") | |
| 8 | > | CONTAINS | INCLUDE | DTID (GEMS_US_SP_0102) Thyroid Lobe Section | 1 | U |  | $SectionLaterality = EV (G-A100, SRT, "Right") | |
| 9 | > | CONTAINS | INCLUDE | DTID (GEMS_US_SP_0103) Lymph Node Section | 1 | U |  | $SectionLaterality = EV (G-A101, SRT, "Left") | |

| | N L | Rel with Parent | VT | Concept Name | V M | Req Type | Cond ition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 10 | > | CONTAINS | INCLUDE | DTID (GEMS_US_SP_0103) Lymph Node Section | 1 | U | | $SectionLaterality = EV (G-A100, SRT, "Right") |
| 11 | > | CONTAINS | INCLUDE | DTID (GEMS_US_SP_0103) Lymph Node Section | 1 | U | | $SectionLaterality = EV (GEU-1007-47, 99GEMS, "Midline") |
| 12 | > | CONTAINS | INCLUDE | DTID (GEMS_US_SP_0104) Parathyroid Section | 1 | U | | $SectionLaterality = EV (G-A101, SRT, "Left") |
| 13 | > | CONTAINS | INCLUDE | DTID (GEMS_US_SP_0104) Parathyroid Section | 1 | U | | $SectionLaterality = EV (G-A100, SRT, "Right") |
| 14 | > | CONTAINS | INCLUDE | DTID (GEMS_US_SP_0105) Isthmus Section | 1 | U | | |

### 16.5.4  TID GEMS_US_SP_0102 Thyroid Lobe Section

**TABLE 16-68 GEMS_US_SP_0102**

| Parameter Name | Parameter Usage |
|---|---|
| $SectionLaterality | The laterality (if any) of the anatomy in this section heading |

| | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | EV (T-B6000, SRT, "Thyroid") | 1 | M | | | |
| 2 | > | HAS CONCEPT MOD | CODE | EV (G-C171, SRT, "Laterality") | 1 | M | | $SectionLaterality | |
| 3 | > | CONTAINS | CODE | EV (GEU-1007-03, 99GEMS, "Resected") | 1 | U | | GE Value | DICOM Map |
| | | | | | | | | "Totally" | EV (GEU-1007-21, 99GEMS, "Totally") |
| | | | | | | | | "Partially" | EV (GEU-1007-22, 99GEMS, "Partially") |
| 4 | > | CONTAINS | CODE | EV (110849, DCM, "Echogenicity") | 1 | U | | GE Value | DICOM Map |
| | | | | | | | | "Homogeneous" | (GEU-1007-23, 99GEMS, "Homogeneous") |
| | | | | | | | | "Coarse" | (GEU-1007-24, 99GEMS, "Coarse") |
| | | | | | | | | "Heterogeneous" | (GEU-1007-63, 99GEMS, "Heterogeneous") |
| | | | | | | | | "HashimotoClassic" | (GEU-1007-73, 99GEMS, "HashimotoClassic") |
| | | | | | | | | "HashimotoProbable" | (GEU-1007-74, 99GEMS, "HashimotoProbable") |
| 5 | > | CONTAINS | CODE | EV (111372, DCM, "Vascularity") | 1 | U | | GE Value | DICOM Map |
| | | | | | | | | "Normal" | (GEU-1007-54, 99GEMS, "Normal") |

| NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | "Increased" | EV (111377, DCM, "Diffusely increased vascularity in surrounding tissue") | |
| | | | | | | | "Decreased" | (GEU-1007-64, 99GEMS, "Decreased") | |
| 6 | > | CONTAINS | CODE | EV (112025, DCM, "Size Descriptor") | 1 | U | | GE Value | DICOM Map |
| | | | | | | | | "Normal" | EV (R-404A9, SRT, "Medium") |
| | | | | | | | | "Enlarged" | EV (R-404AA, SRT, "Large") |
| | | | | | | | | "Small" | EV (R-404A8, SRT, "Small") |
| 7 | > | CONTAINS | TEXT | EV (121106, DCM, "Comments") | 1 | U | | | |
| 8 | > | CONTAINS | INCLUDE | DTID (1400) Linear Measurement | 1-n | U | | | |
| 9 | > | CONTAINS | INCLUDE | DTID (1402) Volume Measurement | 1 | U | | | |
| 10 | > | CONTAINS | INCLUDE | DTID (GEMS_US_SP_0106) Nodules Section | 1 | U | | | |

### 16.5.5 TID GEMS_US_SP_0103 Lymph Node Section

**TABLE 16-69 GEMS_US_SP_0103**

| Parameter Name | Parameter Usage |
|---|---|
| $SectionLaterality | The laterality (if any) of the anatomy in this section heading |

| NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | CONTAINER | EV (T-C4000, SRT, "Lymph Node") | 1 | M | | | | |
| 2 | > | HAS CONCEPT MOD | CODE | EV (G-C171, SRT, "Laterality") | 1 | M | $SectionLaterality | | |
| 3 | > | CONTAINS | CODE | EV (121071, DCM, "Finding") | 1-n | M | | GE Value for Composition | DICOM Map |
| | | | | | | | | Solid | ( 111462, DCM, "Solid mass") |
| | | | | | | | | Cystic | (GEU-1007-56, 99GEMS, "Cystic") |
| | | | | | | | | Complex | (GEU-1007-61, 99GEMS, "Complex") |
| 4 | >> | HAS CONCEPT MOD | CODE | EV(GEU-1007-48, 99GEMS,"Location") | 1 | U | | GE Value | DICOM Map |
| | | | | | | | | "Submental" | (GEU-1007-38, 99GEMS, "Submental") |
| | | | | | | | | "Submandibular" | (GEU-1007-39, 99GEMS, "Submandibular") |
| | | | | | | | | "Parotid" | (GEU-1007-40, 99GEMS, "Parotid") |
| | | | | | | | | "Upper cervical" | (GEU-1007-41, 99GEMS, "Upper cervical") |
| | | | | | | | | "Middle | (GEU-1007-42, |

| NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint | | |
|----|----|----|----|----|----|----|----|----|----|
| | | | | | | | cervical" | 99GEMS,"Middle cervical") | |
| | | | | | | | "Lower cervical" | (GEU-1007-43, 99GEMS, "Lower cervical") | |
| | | | | | | | "Supraclavicular fossa" | (GEU-1007-44, 99GEMS, "Supraclavicular fossa") | |
| | | | | | | | "Posterior triangle" | (GEU-1007-45, 99GEMS, "Posterior triangle") | |
| 5 | >> | HAS PROPERTIES | CODE | EV(GEU-1007-04, 99GEMS,"Appearance") | 1 | U | | GE Value | DICOM Map |
| | | | | | | | | "Within normal limits" | (GEU-1007-75, 99GEMS, "Within normal limits") |
| | | | | | | | | "Pathologic" | (GEU-1007-07, 99GEMS," Pathologic") |
| | | | | | | | | "Suspicious" | (GEU-1007-70, 99GEMS," Suspicious") |
| 6 | >> | HAS PROPERTIES | CODE | EV (111372, DCM, "Vascularity") | 1 | U | | GE Value | DICOM Map |
| | | | | | | | | "Normal" | EV (GEU-1007-54, 99GEMS, "Normal") |
| | | | | | | | | "Increased hilar" | (GEU-1007-71, 99GEMS, "Increased hilar") |
| | | | | | | | | "Increased non-hilar" | (GEU-1007-72, 99GEMS, "Increased non-hilar") |
| 7 | >> | HAS PROPERTIES | TEXT | EV (121106, DCM, "Comments") | 1 | U | | | |
| 8 | >> | HAS PROPERTIES | INCLUDE | DTID (1400) Linear Measurement | 1-n | U | | | |
| 9 | >> | HAS PROPERTIES | NUM | EV(GEU-1007-13, 99GEMS, "Cortical Thickness") | 1 | U | UNITS = DCID(7460) "Units of Linear Measurement" | | |

### 16.5.6 TID GEMS_US_SP_0104 Parathyroid Section

**TABLE 16-70 GEMS_US_SP_0104**

| Parameter Name | Parameter Usage |
|----|----|
| $SectionLaterality | The laterality (if any) of the anatomy in this section heading |

| NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint | | |
|----|----|----|----|----|----|----|----|----|----|
| 1 | | | CONTAINER | EV (T-B7000, SRT, "Parathyroid") | 1 | M | | | |
| 2 | > | HAS CONCEPT MOD | CODE | EV (G-C171, SRT, "Laterality") | 1 | M | $SectionLaterality | | |
| 3 | > | CONTAINS | CODE | EV (121071, DCM, "Finding") | 1-n | M | EV (T-B7000, SRT, "Parathyroid") | | |
| 4 | >> | HAS PROPERTIES | CODE | EV(GEU-1007-51, 99GEMS,"Visibility") | 1 | U | | GE Value | DICOM Map |
| | | | | | | | | "Visualized" | (GEU-1007-10, 99GEMS," Visualized") |
| | | | | | | | | "Not Visualized" | (GEU-1007-55, 99GEMS," Not Visualized") |

| NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint | |
|----|-----------------|-----|--------------|-----|----------|-----------|--------------------|---|
| | | | | | | | | |
| 5 | >> | HAS CONCEPT MOD | CODE | EV(GEU-1007-48, 99GEMS,"Location") | 1 | U | | GE Value | DICOM Map |
| | | | | | | | | "Upper Gland" | (GEU-1007-49, 99GEMS," Upper Gland"") |
| | | | | | | | | "Lower Gland" | (GEU-1007-50, 99GEMS," Lower Gland") |
| 6 | >> | HAS PROPERTIES | TEXT | EV (121106, DCM, "Comments") | 1 | U | | | |
| 7 | >> | HAS PROPERTIES | INCLUDE | DTID (1400) Linear Measurement | 1-n | U | | | |

### 16.5.7 TID GEMS_US_SP_0105 Isthmus Section

**TABLE 16-71 GEMS_US_SP_0105**

| NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|----|-----------------|-----|--------------|-----|----------|-----------|--------------------|
| 1 | | CONTAINER | EV (T-B6300, SRT, "thyroid isthmus") | 1 | M | | |
| 2 | > | CONTAINS | TEXT | EV (121106, DCM, "Comments") | 1 | U | |
| 3 | > | CONTAINS | NUM | EV(GEU-1007-12, 99GEMS, "Isthmus AP") | 1 | U | UNITS = DCID(7460)   "Units of Linear Measurement" |
| 4 | > | CONTAINS | INCLUDE | DTID (GEMS_US_SP_0106) Nodules Section | 1 | U | |

### 16.5.8 TID GEMS_US_SP_0106 Nodules Section

**TABLE 16-72 GEMS_US_SP_0106**

| NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint | |
|----|-----------------|-----|--------------|-----|----------|-----------|--------------------|---|
| 1 | | | CONTAINER | EV (M-03010, SRT, "Nodule") | 1 | M | | | |
| 2 | > | CONTAINS | CODE | EV (121071, DCM, "Finding") | 1-n | M | | GE Value for Composition | DICOM Map |
| | | | | | | | | Solid | ( 111462, DCM, "Solid mass") |
| | | | | | | | | Cystic | (GEU-1007-56, 99GEMS, "Cystic") |
| | | | | | | | | Mixed | (GEU-1007-20, 99GEMS, "Mixed") |
| | | | | | | | | Complex | (GEU-1007-60, 99GEMS, "Complex") |
| | | | | | | | | Heterogeneous | (GEU-1007-62, 99GEMS, "Heterogeneous") |
| 3 | >> | HAS CONCEPT MOD | CODE | EV (GEU-1007-28, 99GEMS, "Location A") | 1 | U | | GE Value | DICOM Code |
| | | | | | | | | "Upper" | (GEU-1007-29, 99GEMS, "Upper") |
| | | | | | | | | "Mid" | (GEU-1007-30, 99GEMS, "Mid") |
| | | | | | | | | "Lower" | (GEU-1007-31, 99GEMS, "Lower") |
| 4 | >> | HAS CONCEPT | CODE | EV (GEU-1007-32, 99GEMS, "Location B") | 1 | U | | GE Value | DICOM Code |
| | | | | | | | | "Lateral" | (GEU-1007-33, |

| NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint | |
|---|---|---|---|---|---|---|---|---|
| | MOD | | | | | | | 99GEMS, "Lateral") |
| | | | | | | | "Mid" | (GEU-1007-30, 99GEMS, "Mid") |
| | | | | | | | "Medial" | (GEU-1007-34, 99GEMS, "Medial") |
| 5 >> | HAS PROPERTIES | CODE | EV (M-020F9, SRT, "Shape") | 1 | U | | GE Value | DICOM Code |
| | | | | | | | Oval | (M-02120, SRT, "Ovoid shape (Oval)") |
| | | | | | | | Round | (M-02100, SRT, "Round shape") |
| | | | | | | | Lobulated | (G-A640,SRT, "Lobular") |
| | | | | | | | Irregular | (G-A402, SRT, "Irregular") |
| 6 >> | HAS PROPERTIES | CODE | EV (111037, DCM, "Margins") | 1 | U | | GE Value | DICOM Code |
| | | | | | | | "Well-Defined" | (R-40771, SRT, "Well defined") |
| | | | | | | | "Well-Defined with halo" | (GEU-1007-08 , 99GEMS, ""Well-Defined with halo") |
| | | | | | | | "Well-Defined with partial halo" | (GEU-1007-09, 99GEMS, "Well-Defined with partial halo") |
| | | | | | | | "Well-defined with complete halo" | (GEU-1007-57, 99GEMS, "Well-defined with complete halo") |
| | | | | | | | "Poorly defined" | (R-428E7, SRT, "Poorly defined") |
| | | | | | | | "Irregular" | (G-A402, SRT," Irregular") |
| 7 >> | HAS PROPERTIES | CODE | EV (111372, DCM, "Vascularity") | 1 | U | | GE Value | DICOM Map |
| | | | | | | | "Normal" | EV (GEU-1007-54, 99GEMS, "Normal") |
| | | | | | | | "Increased" | EV (111377, DCM, "Diffusely increased vascularity in surrounding tissue") |
| | | | | | | | "Decreased" | (GEU-1007-64, 99GEMS, "Decreased") |
| | | | | | | | "Central vasc avascular" | (GEU-1007-65, 99GEMS, "Central vasc avascular") |
| | | | | | | | "Central vasc hypovascular" | (GEU-1007-66, 99GEMS, "Central vasc hypovascular") |
| | | | | | | | "Central vasc isovascular" | (GEU-1007-67, 99GEMS, "Central vasc isovascular") |
| | | | | | | | "Central vasc hypervascular" | (GEU-1007-68, 99GEMS, "Central vasc hypervascular") |
| | | | | | | | "Central vasc severely hypervascular" | (GEU-1007-69, 99GEMS, "Central vasc severely hypervascular") |
| 8 >> | HAS PROPERTIES | CODE | EV (111009, DCM, "Calcification Type") | | | | GE Value | DICOM Map |
| | | | | | | | "No calcification" | (GEU-1007-78, 99GEMS, "No calcification") |
| | | | | | | | "Coarse central" | EV (GEU-1007-15, 99GEMS, "Coarse |

| NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint | |
|----|----|----|----|----|----|----|----|----|
| | | | | | | | | central") |
| | | | | | | | "Coarse rim" | EV (GEU-1007-16, 99GEMS, "Coarse rim") |
| | | | | | | | "Punctate scattered" | EV (GEU-1007-79, 99GEMS, "Punctate scattered") |
| | | | | | | | "Punctate clumped" | EV (GEU-1007-80, 99GEMS, "Punctate clumped") |
| | | | | | | | "Colloid" | EV (GEU-1007-19, 99GEMS, "Colloid") |
| | | | | | | | "Mixed" | EV (GEU-1007-20, 99GEMS, "Mixed") |
| 9 | >> HAS PROPERTIES | TEXT | EV (121106, DCM, "Comments") | 1 | U | | | |
| 10 | >> HAS PROPERTIES | INCLUDE | DTID (1400) Linear Measurement | 1-n | U | | | |
| 11 | >> HAS PROPERTIES | INCLUDE | DTID (1402) Volume Measurement | 1 | U | | | |

## 16.5.9 TID 1400 Linear Measurement Template

**TABLE 16-73 TID 1400**

| NL | Rel with Parent | VT | Concept Name | | VM | Req Type | Condition | Value Set Constraint |
|----|----|----|----|----|----|----|----|----|
| 1 | | NUM | GE Measurement | DICOM Map | 1 | M | | UNITS = DCID(7460) "Units of Linear Measurement" |
| | | | Length | (G-A22A, SRT, "Length") | | | | |
| | | | Width | (G-A220, SRT, "Width") | | | | |
| | | | Height | (121207, DCM, "Height") | | | | |

## 16.5.10 TID 1402 Volume Measurement Template

**TABLE 16-74 TID 1402**

| NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|----|----|----|----|----|----|----|----|
| 1 | | NUM | EV(G-D705, SRT, "Volume") | 1 | M | | Value shall be > 0 UNITS = DCID(7462) "Units of Volume Measurement" |

## 16.5.11 TID 1204 Language of Content Item and Descendants

**TABLE 16-75 TID 1204**

| NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|----|----|----|----|----|----|----|----|

| 1 | HAS CONCEPT MOD | CODE | (121049,DCM,"Language of Content Item and Descendants") | 1 | M | | (en, RFC3066, "English") |
|---|---|---|---|---|---|---|---|

## 16.6 KEY OBJECT SELECTION DOCUMENT TEMPLATE

This section describes the contents of the Key Object Selection Document Template (TID 2010) SR.

### 16.6.1 TID 2010 Template

**TABLE 16-76 TID 2010 KEY OBJECT SELECTION DOCUMENT**

| | NL | Rel with Parent | VT | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
| 1 | | | CONTAINER | (DCM, 113001, "Rejected for Quality Reasons") | 1 | M | | |
| 2 | > | HAS CONCEPT MOD | INCLUDE | DTID(1204) Language of Content Item and Descendants | 1 | U | | (en, RFC3066, "English") |
| 3 | > | HAS OBS CONTEXT | INCLUDE | DTID(1002) Observer Context | 1-n | U | | |
| 4 | > | CONTAINS | TEXT | EV(113012, DCM, "Key Object Description") | 1 | U | | "List of Rejected Images for Quality" |
| 5 | > | CONTAINS | IMAGE | Purpose of Reference shall not be present | 1-n | MC | | List of image instance UIDs that are marked for deletion |

## 16.7  GE ULTRASOUND M&A REPORT

LOGIQ P8/P9/P10 Scanner supports the following private templates GEMS_US_0100 for SOP Instances created by this product when exam types selected are Small Parts, Urology and Pediatrics.

### 16.7.1  TID GEMS_US_0100 Template

**TABLE 16-77 GEMS_US_0100**

|  | NL | Relation with Parent | Value Type | Concept Name | VM | Req Type | Condition | Value Set Constraint |
|---|---|---|---|---|---|---|---|---|
|  |  |  | CONTAINER | EV (43126, 99GEMS,'ultrasound M&A Document') | 1 | M |  |  |
|  | > | CONTAINS | UIDREF | EV (43140, 99GEMS,'Series Instance UID') | 1 | U |  |  |
|  | > | CONTAINS | TEXT | EV(29463-7, LN,'Patient Weight') | 1 | U |  |  |
|  | > | CONTAINS | TEXT | EV(8302-2, LN, 'Patient Height') | 1 | U |  |  |
|  | > | CONTAINS | TEXT | EV (43148, 99GEMS, 'Ultrasound Category') | 1 | U |  |  |
|  | > | CONTAINS | TEXT | EV (11878-6,LN, 'Number of Fetuses') | 1 | U |  |  |
|  | > | CONTAINS | TEXT | EV(43139, 99GEMS, 'EDD method') | 1 | U |  |  |
|  | > | CONTAINS | CONTAINER | (43127, 99GEMS, "ultrasound parameter") | 1-n | U |  |  |
|  | >> | CONTAINS | TEXT | (43127, 99GEMS, "ultrasound parameter averaging method") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43143, 99GEMS, "ultrasound display mode") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43132, 99GEMS, "ultrasound parameter preferred display unit") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43137, 99GEMS, "ultrasound parameter value, manually edited") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43135, 99GEMS, "ultrasound parameter, exclude from averaging") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43136, 99GEMS, "ultrasound parameter, exclude from calculation") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43148, 99GEMS, "ultrasound category") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43141, 99GEMS, "ultrasound parameter, mark deleted") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43149, 99GEMS, "ultrasound parameter, srStudy text") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43146, 99GEMS, "ultrasound parameter, measurement tool") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43144, 99GEMS, | 1 | M |  |  |

|  |  |  |  | "ultrasound image mode") |  |  |  |  |
|---|---|---|---|---|---|---|---|---|
|  | >> | CONTAINS | TEXT | (43131, 99GEMS, "ultrasound parameter ID") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43133, 99GEMS, "ultrasound parameter preferred display name") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43134, 99GEMS, "ultrasound parameter value source") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43142, 99GEMS, "Result Number") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43145, 99GEMS, "ultrasound study type") | 1 | M |  |  |
|  | >> | CONTAINS | TEXT | (43129, 99GEMS, "ultrasound parameter textual value") | 1 | M |  |  |
|  | >> | CONTAINS | NUM | (43128, 99GEMS, "ultrasound parameter numeric value") | 1 | M |  |  |

# 17. GRAYSCALE DISPLAY CONSISTENCY

The high-resolution display monitor attached to the LOGIQ P8/P9/P10 scanner is adjusted to meet the Grayscale Standard Display Function (GSDF). The implementation follows the image viewing pipeline as defined by the DICOM standard. The displayed/saved images are applied the Modality LUT Transformation, Window/Level Transformation and Presentation LUT Transformation. Provided luminance test patterns can be used together with a luminance meter to measure the performance of the display system. See the service manual for details on how to perform these measurements.

When the Grayscale Standard Display Function (GSDF) is being applied to an image the Presentation LUT Shape tag (2050,0020) within the General Image Module is set to IDENITY.   This tag is also a part of the Enhanced US Image Module.

# EC Declaration of Conformity

Following the provisions of the medical devices directive 93/42/EEC, Annex II and of the directive 2011/65/EU, directive 2012/19/EU, directive 2014/53/EU

| Manufacturer: | EU Authorized Representative: |
|---|---|
| **GE Ultrasound Korea, Ltd.** | **GE MEDICAL SYSTEMS SCS** |
| **9, Sunhwan-ro 214beon-gil,** | **283 RUE DE LA MINIERE** |
| **Jungwon-gu, SEONGNAM-SI,** | **78530 BUC** |
| **GYEONGGI-DO Republic of Korea** | **FRANCE** |

Equivalent to
**65-1, Sangdaewon-dong,**
**Jungwon-gu, SEONGNAM-SI**
**GYEONGGI-DO 462-120 Republic of Korea**

Additional Manufacturing site
**GE MEDICAL SYSTEMS INFORMATION TECHNOLOGIES**
**CRITIKON DE MEXICO S.de R.L. de C.V.,**
**Calle Valle del Cedro 1551,**
**Juarez 32575 CHIHUAHUA**
**MEXICO**

*We hereby declare under our sole responsibility that the class **IIa** product*:

**LOGIQ P8, LOGIQ P9, LOGIQ P10 General Purpose Ultrasound Imaging System** (ref: See Addendum)

    GMDN Code: **40761**
    UMDNS Code: **15976**
    Classification rule (93/42/EC Annex IX): **Rule 10**

To which this declaration relates, is in conformity with the requirements of:
The medical devices directive 93/42/EEC (MDD)
The directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)
The directive 2012/19/EU on the waste electrical and electronic equipment (WEEE)
The directive 2014/53/EU on the radio equipment (RED)

This conformity is based on the following elements:

- Information included in the technical documentation ref.: **DOC1587707** /DHF ref.: **DOC1412680**, of the product to which this declaration relates.

- EC certificate: approval of full quality assurance system (Annex II of the medical devices directive 93/42/EEC) delivered by GMED (Notified Body N° **0459**) on Certificate Number **N° 7697**.

- List of harmonized standards applied for CE marking

  - **EN 60601-1:2006/A12:2014 (Edition 3.1)**
  - **EN 60601-1-2:2015**
  - **EN 60601-1-6:2010/A1:2015**
  - **EN 60601-2-37: 2008/A1:2015**
  - **EN 62304:2006/AC: 2008**
  - **EN 62366:2008 + A1:2015**
  - **EN 1041:2008**
  - **EN ISO 15223-1: 2016**

Song, Chae-Rin
Regulatory Affairs Specialist

Date: 28-Apr-2021

GE Healthcare. GE Ultrasound Korea, Ltd.
9, Sunhwan-ro 214beon-gil, Jungwon-gu, SEONGNAM-SI, GYEONGGI-DO REPUBLIC OF KOREA

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## ADDENDUM TO THE EC DECLARATION OF CONFORMITY dated 28-Apr-2021

| Product Description | HCAT # | LOGIQ P8 | LOGIQ P9 | LOGIQ P10 | LOGIQ P10 HD |
|---|---|---|---|---|---|
| **Base Systems** | | | | | |
| LOGIQ P8 R4 | H43092LH | 1 | - | - | - |
| LOGIQ P9 R4 | H43092LJ | - | 1 | - | - |
| LOGIQ P10 R4 | H43092LK | - | - | 1 | - |
| LOGIQ P10 R4 HD | H43092LL | - | - | - | 1 |
| **Probes** | | | | | |
| M5Sc-RS Probe | H44901AG | - | - | 1 | 1 |
| C1-6-D Probe | H40472LT | - | 1 | 1 | 1 |
| C3-10-D Probe | H40482LB | - | - | 1 | 1 |
| C2-7-D Probe | H46422LM | 1 | 1 | 1 | 1 |
| 10C-D Probe | H46342LA | 1 | 1 | 1 | 1 |
| E8C-RS | H40402LN | 1 | 1 | 1 | 1 |
| 8C-RS | H40402LS | 1 | 1 | 1 | 1 |
| 12L-RS Probe | H40402LY | 1 | 1 | 1 | 1 |
| 9L-RS Probe | H40442LL | 1 | 1 | 1 | 1 |
| C1-5-RS Probe | H40462LA | 1 | 1 | 1 | 1 |
| L8-18i-RS Probe | H40462LF | 1 | 1 | 1 | 1 |
| ML6-15-RS Probe | H40462LM | 1 | 1 | 1 | 1 |
| BE9CS-RS Probe | H40482LN | 1 | 1 | 1 | 1 |
| 12S-RS Probe | H44901AB | 1 | 1 | 1 | 1 |
| L3-12-RS Probe | H44901AP | 1 | 1 | 1 | 1 |
| 6S-RS PROBE | H45021RP | 1 | 1 | 1 | 1 |
| 3Sc-RS Probe | H45041DL | 1 | 1 | 1 | 1 |
| 6Tc-RS Probe | H45551ZE | 1 | 1 | 1 | 1 |
| L3-9i-RS Probe | H46442LK | - | 1 | 1 | 1 |
| L4-12t-RS Probe | H48062AB | 1 | 1 | 1 | 1 |
| L6-12-RS Probe | H48062AC | 1 | 1 | 1 | 1 |
| E8Cs-RS Probe | H48062AF | 1 | 1 | 1 | 1 |
| P2D Probe | H4830JE | 1 | 1 | 1 | 1 |
| P6D Probe | H4830JG | 1 | 1 | 1 | 1 |
| Doppler P8D Probe | H46312LZ | 1 | 1 | 1 | 1 |
| L10-22-RS | H48312AH | - | 1 | 1 | 1 |
| RAB2-6-RS Probe | H48681WR | 1 | 1 | 1 | 1 |
| IC9-RS Probe | H48691PJ | 1 | 1 | 1 | 1 |
| RIC5-9A-RS Probe | H48701EJ | 1 | 1 | 1 | 1 |
| **Biopsy Options** | | | | | |
| 3SP Multi-Angle Biopsy | H46222LC | 1 | 1 | 1 | 1 |
| M5S Biopsy Kit | H45561FC | - | - | 1 | 1 |
| 9L Bio Guide Starter Kit | H4906BK | 1 | 1 | 1 | 1 |

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|---|---|---|---|---|---|
| 12L-RS Biopsy Starter Kit | H40432LC | 1 | 1 | 1 | 1 |
| ML6-15 Biopsy Starter Kit | H40432LJ | 1 | 1 | 1 | 1 |
| 12L Transverse Bracket | H48392LL | 1 | 1 | 1 | 1 |
| Infinite 12L Biopsy Kit | H48392LT | 1 | 1 | 1 | 1 |
| L3-12-D Biopsy Kit | H48302AA | 1 | 1 | 1 | 1 |
| C1-5 Biopsy Starter Kit | H40432LE | 1 | 1 | 1 | 1 |
| C1-6-D Biopsy Starter Kit | H4913BB | - | 1 | 1 | 1 |
| C2-7 Biopsy Kit | H40482LK | 1 | 1 | 1 | 1 |
| C2-7 Biopsy Kit Stainless | H40482LL | 1 | 1 | 1 | 1 |
| E721 Starter Kit | E8385MJ | 1 | 1 | 1 | 1 |
| E8C E721 E8C-RS IC5-9H MTZ Biopsy Kit | E8333JB | 1 | 1 | 1 | 1 |
| E8C Reusable Biopsy Kit | H40412LN | 1 | 1 | 1 | 1 |
| BE9CS Biopsy Kit 742-339 | H42742LH | 1 | 1 | 1 | 1 |
| BE9CS Biopsy Kit 742-401 | H42742LJ | 1 | 1 | 1 | 1 |
| Reusable Biopsy Needle Guide for GE BE9C Ultrasound Probe | E8387MA | 1 | 1 | 1 | 1 |
| Sterile Disposable Biopsy Needle Guide kit for GE BE9C Probe | E8387M | 1 | 1 | 1 | 1 |
| IC9-RS Reusable Biopsy Kit | H48701MN | 1 | 1 | 1 | 1 |
| IC9 Biopsy Disposable Biopsy Starter Kit | H48691YW | 1 | 1 | 1 | 1 |
| RAB6-D Biopsy Starter Kit | H48681ML | 1 | 1 | 1 | 1 |
| PEC63 Biopsy Kit for RIC5-9 | H46721R | 1 | 1 | 1 | 1 |
| RIC5-9A-RS Single Angle Disposable Biopsy Kit | H48681GF | 1 | 1 | 1 | 1 |
| **TEE PRB Accessory** | | | | | |
| ADULT TEE CLIP-ON BITE GUARD | H45511EE | 1 | 1 | 1 | 1 |
| ADULT TEE CLIP-ON BITE GUARD OPR. | H45521CB | 1 | 1 | 1 | 1 |
| ADULT TEE SCANHEAD PROTECTION COVER | H45521CK | 1 | 1 | 1 | 1 |
| ADULT TEE CONVENTIONAL BITE GUARD | H45521JH | 1 | 1 | 1 | 1 |
| BITE HOLE INDICATOR | H45531HS | 1 | 1 | 1 | 1 |
| TEE PROBES UM EN | H45531RA | 1 | 1 | 1 | 1 |
| TEE PROBES UM IT | H45531RD | 1 | 1 | 1 | 1 |
| TEE PROBES UM ES | H45531RE | 1 | 1 | 1 | 1 |
| TEE PROBES UM PT-PT | H45531RF | 1 | 1 | 1 | 1 |
| TEE PROBES UM JA | H45531RG | 1 | 1 | 1 | 1 |

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|---|---|---|---|---|---|
| TEE PROBES UM SV | H45531RJ | 1 | 1 | 1 | 1 |
| TEE PROBES UM NO | H45531RK | 1 | 1 | 1 | 1 |
| TEE PROBES UM DA | H45531RL | 1 | 1 | 1 | 1 |
| TEE PROBES UM PL | H45531RM | 1 | 1 | 1 | 1 |
| TEE PROBES UM FI | H45531RN | 1 | 1 | 1 | 1 |
| TEE PROBES UM EL | H45531RP | 1 | 1 | 1 | 1 |
| TEE PROBES UM RU | H45531RQ | 1 | 1 | 1 | 1 |
| TEE PROBES UM NL | H45531RR | 1 | 1 | 1 | 1 |
| TEE PROBES UM HU | H45531PL | 1 | 1 | 1 | 1 |
| TEE PROBES UM SK | H45531PM | 1 | 1 | 1 | 1 |
| TEE PROBES UM RO | H45531PN | 1 | 1 | 1 | 1 |
| TEE PROBES UM CZ | H45531PP | 1 | 1 | 1 | 1 |
| TEE PROBES UM LV | H45531PQ | 1 | 1 | 1 | 1 |
| TEE PROBES UM LT | H45531PR | 1 | 1 | 1 | 1 |
| TEE PROBES UM TR | H45531PS | 1 | 1 | 1 | 1 |
| TEE PROBES UM ET | H45531PT | 1 | 1 | 1 | 1 |
| TEE PROBES UM KO | H45531PW | 1 | 1 | 1 | 1 |
| TEE PROBES UM SR | H45531ZQ | 1 | 1 | 1 | 1 |
| TEE PROBES UM BG | H45531ZR | 1 | 1 | 1 | 1 |
| TEE PROBES UM HR | H45531RH | 1 | 1 | 1 | 1 |
| TEE PROBES UM ID | H45531CG | 1 | 1 | 1 | 1 |
| TEE PROBES UM Port EU | H45531AN | 1 | 1 | 1 | 1 |
| TEE PROBES UM Ukrainian | H45531PL | 1 | 1 | 1 | 1 |
| TEE PROBES UM SL | H45531PT | 1 | 1 | 1 | 1 |
| TEE CLEANING SYSTEM | H45551NK | 1 | 1 | 1 | 1 |
| TEE STORAGE RACK | H45551NM | 1 | 1 | 1 | 1 |
| **Software options** | | | | | |
| LP7 and LP9 Advanced 3D | H42782LK | 1 | 1 | 1 | 1 |
| LP7 and LP9 Auto IMT | H42782LL | 1 | 1 | 1 | 1 |
| LP7 and LP9 DICOM | H42782LR | 1 | 1 | 1 | 1 |
| LP7 and LP9 Elastography | H42782LS | 1 | 1 | 1 | 1 |
| LP7 and LP9 Elastography Quantification | H42782LT | 1 | 1 | 1 | 1 |
| LP7 and LP9 Flow Quantification | H42782LW | 1 | 1 | 1 | 1 |
| LP7 and LP9 LOGIQView | H42782LY | 1 | 1 | 1 | 1 |
| LP7 and LP9 Report Writer | H42782LZ | 1 | 1 | 1 | 1 |
| LP7 and LP9 Scan Assistant | H42792LA | 1 | 1 | 1 | 1 |
| LP7 and LP9 Stress Echo | H42792LB | 1 | 1 | 1 | 1 |
| LP7 and LP9 Tissue Velocity Imaging TVI | H42792LC | 1 | 1 | 1 | 1 |

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|---|---|---|---|---|---|
| LP7 and LP9 B Steer+ | H42792LD | 1 | 1 | 1 | 1 |
| LP7 and LP9 4D TUI Software | H42792LF | 1 | 1 | 1 | 1 |
| LP7 and LP9 VOCAL Software | H42792LG | 1 | 1 | 1 | 1 |
| LP7 and LP9 VCI Static Software | H42792LH | 1 | 1 | 1 | 1 |
| LP7 and LP9 Auto EF | H42792LJ | 1 | 1 | 1 | 1 |
| LP7 and LP9 Meas Assist Breast | H42792LK | 1 | 1 | 1 | 1 |
| LP7 and LP9 Meas Assist OB | H42792LL | 1 | 1 | 1 | 1 |
| LP7 and LP9 Breast Prod | H42792LM | 1 | 1 | 1 | 1 |
| LP7 and LP9 Compare Assistant | H42792LN | 1 | 1 | 1 | 1 |
| LP7 and LP9 Thyroid Prod | H42792LP | 1 | 1 | 1 | 1 |
| LP7 and LP9 SWDVR | H42792LR | 1 | 1 | 1 | 1 |
| SWDVR Basic | H42922LY | 1 | 1 | 1 | 1 |
| LP7-P9 R2 Cardiac Strain | H42822LY | 1 | 1 | 1 | 1 |
| LP7-P9 STIC | H42822LZ | 1 | 1 | 1 | 1 |
| LP7-P9 Omniview | H42832LA | 1 | 1 | 1 | 1 |
| LP7-P9 R3 HD B-Flow | H42892LR | 1 | 1 | 1 | 1 |
| LP7-P9 R3 CEUS | H42892LS | 1 | 1 | 1 | 1 |
| LP7-P9 R3 HRes CEUS | H42892LT | 1 | 1 | 1 | 1 |
| LP7-P9 R3 HDLive | H42892LW | 1 | 1 | 1 | 1 |
| LP7-P9 R3 ShearWave | H42892LY | 1 | 1 | 1 | 1 |
| LOGIQ P Apps without Dongle | H42922LM | 1 | 1 | 1 | 1 |
| KOIOS SW for LOGIQ P8 P9 P10 R4 | H43122LW | 1 | 1 | 1 | 1 |
| LOGIQ E10 KOIOS Install | H4919KI | 1 | 1 | 1 | 1 |
| UGAP | H43122LK | 1 | 1 | 1 | 1 |
| SonoNT SonoIT | H43122LL | 1 | 1 | 1 | 1 |
| Sono AVC for Renal | H43122LR | 1 | 1 | 1 | 1 |
| Hepatic Assistant | H43132LR | 1 | 1 | 1 | 1 |
| **Hardware options** | | | | | |
| Pencil Probe CW HW Kit for LOGIQ P8 P9 P10 R4 | H43132LM | 1 | 1 | 1 | 1 |
| LP7 and LP9 4D Kit | H42802LD | 1 | 1 | 1 | 1 |
| LP7-P9 R2 Battery option | H42832LG | 1 | 1 | 1 | 1 |
| LP7-P9 UVC S300 | H42832LJ | 1 | 1 | 1 | 1 |
| LP7-P9 UVC S300 Japan | H42832LK | 1 | 1 | 1 | 1 |
| LOGIQ P Apps | H42892LZ | 1 | 1 | 1 | 1 |
| LP7-P9 R3 ext battery | H42902LM | 1 | 1 | 1 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| LP7-P9 R3 R3 ODD Option | H42912LE | 1 | 1 | 1 | 1 |
| Pwr supply noise filter | H46162LH | 1 | 1 | 1 | 1 |
| LP7 P9 CW HW Kit | H46432LN | 1 | 1 | 1 | 1 |
| USB FOOTSWITCH 3 BUTTON | H46732LF | 1 | 1 | 1 | 1 |
| ISOLATION TRANSFORMER | H48671WN | 1 | 1 | 1 | 1 |
| USB barcode reader | H43132LZ | 1 | 1 | 1 | 1 |
| Ethernet Protection Cable | H43272LJ | 1 | 1 | 1 | 1 |
| **ECG options** | | | | | |
| ECG Module Option Kit for LOGIQ P8 P9 P10 R4 | H43122LZ | 1 | 1 | 1 | 1 |
| ECG CABLE - AHA STYLE | H4910EC | 1 | 1 | 1 | 1 |
| ECG CABLES IEC STYLE | H4911JC | 1 | 1 | 1 | 1 |
| **ME Option** | | | | | |
| LP7 AND LP9 PAPER TRAY | H42802LE | 1 | 1 | 1 | 1 |
| LP7 AND LP9 OPIO TRAY | H42802LG | 1 | 1 | 1 | 1 |
| LP7-P9 R3 Rear handle | H42902LC | 1 | 1 | 1 | 1 |
| LP7-P9 R3 Cable Hook rear | H42902LD | 1 | 1 | 1 | 1 |
| LP7-P9 R3 Gel Warmer | H42902LE | 1 | 1 | 1 | 1 |
| LP7-P9 R3 High Cabinet | H42902LG | 1 | 1 | 1 | 1 |
| LP7-P9 R3 Drawer | H42902LH | 1 | 1 | 1 | 1 |
| LP7-P9 R3 Low Cabinet | H42902LJ | 1 | 1 | 1 | 1 |
| LP7-P9 R3 Multi P. holder | H42902LK | 1 | 1 | 1 | 1 |
| PROBE CABLE HANGER | H44412LA | 1 | 1 | 1 | 1 |
| LOGIQ S7 R3 Small Probe Holder | H46302LB | 1 | 1 | 1 | 1 |
| **Peripherals** | | | | | |
| **Printers** | | | | | |
| UP-D25MD PRINTER | H44642LW | 1 | 1 | 1 | 1 |
| BW Printer Installation Kit for LOGIQ P8 P9 P10 R4 | H43132LN | 1 | 1 | 1 | 1 |
| UP-D898 BW Printer Kit | H46992LS | 1 | 1 | 1 | 1 |
| **Wireless LAN** | | | | | |
| LP7 P9 W. LESS LAN KIT | H42802LL | 1 | 1 | 1 | 1 |
| **Power Cords** | | | | | |
| Power Cord 220V EU | H46342LZ | 1 | 1 | 1 | 1 |
| PWR CORD DK HSP C13 RED | H46712LT | 1 | 1 | 1 | 1 |
| PWR CORD DK STD C13 GRY | H46692LK | 1 | 1 | 1 | 1 |

| Destination Sets | | | | | |
|---|---|---|---|---|---|
| LP7-P9 Destination set JAPAN | H40392LA | 1 | 1 | 1 | 1 |
| DESTINATION SET TAIWAN | H44512LY | 1 | 1 | 1 | 1 |
| DESTINATION SET UK | H46712LM | 1 | 1 | 1 | 1 |
| DESTINATION SET S AFRICA | H46712LN | 1 | 1 | 1 | 1 |
| DESTINATION SET ARGENTINA | H46712LP | 1 | 1 | 1 | 1 |
| DESTINATION SET ISRAEL | H46712LR | 1 | 1 | 1 | 1 |
| DESTINATION SET SWISS | H46712LS | 1 | 1 | 1 | 1 |
| DESTINATION SET US | H46712LW | 1 | 1 | 1 | 1 |
| DESTINATION KIT AUS_NZ | H46712LZ | 1 | 1 | 1 | 1 |
| DESTINATION SET CHINA | H46722LA | 1 | 1 | 1 | 1 |
| DESTINATION SET INDIA | H46722LB | 1 | 1 | 1 | 1 |
| DESTINATION SET ITALY | H46722LD | 1 | 1 | 1 | 1 |
| DESTINATION SET BRAZIL | H46752LW | 1 | 1 | 1 | 1 |
| **Keyboards and Key Cap Language Kits** | | | | | |
| AN Keyb. Greek black | H42902LR | 1 | 1 | 1 | 1 |
| AN Keyb. Norwegian black | H42902LS | 1 | 1 | 1 | 1 |
| AN Keyb. Russian black | H42902LT | 1 | 1 | 1 | 1 |
| AN Keyb. French black | H42902LW | 1 | 1 | 1 | 1 |
| AN Keyb. Swedish black | H42902LY | 1 | 1 | 1 | 1 |
| AN Keyb. German black | H42902LZ | 1 | 1 | 1 | 1 |
| AN Keyb. English black | H42912LA | 1 | 1 | 1 | 1 |
| **Upgrade kit** | | | | | |
| LP9 R3 to R4 SW conversion | H43092LM | - | 1 | - | - |
| **Veterinary Use Only** | | | | | |
| Vet kit | H46832LC | 1 | 1 | 1 | 1 |
| Vet probe caution label | H48492AW | 1 | 1 | 1 | 1 |

Notes:

[1] Catalog number identifies the device(s) in the manufacturer's catalog and is usually included on commercial documents like sales contract, order processing documents and shipping documents.

[2] Probes and accessories may carry the CE-mark and when applicable, the Notified Body number corresponding to the EC Declaration under which the products are CE-marked by their manufacturer. GE Ultrasound Korea Ltd. has verified the mutual compatibility of the devices in combination with LOGIQ P10, LOGIQ P9, LOGIQ P8 and included relevant information to users with the LOGIQ P10, LOGIQ P9 and LOGIQ P8 instructions for use.

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**End of Document**

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# EC Certificate

**EU Quality Management System**
**REGULATION (EU) 2017/745 on Medical Devices, Annex IX Chapter 1,**
**Section 2 and 3 and Chapter III**

TÜVRheinland®

| | |
|---|---|
| Registration No.: | HZ 2004702-01 |
| Manufacturer: | **GE Ultrasound Korea, Ltd.**<br>9, Sunhwan-ro  214beon-gil,<br>Jungwon-gu, Seongnam-si, Gyeonggi-do 13204<br>Republic of Korea |
| EUDAMED Single Registration No.: | No registration number available yet |
| Products: | Class IIa - Z110401 ULTRASOUND SCANNERS |
| Authorised representative(s): | GE Medical Systems SCS<br>283 Rue de la Miniere, 78530 BUC<br>France |

| Certificate history | | |
|---|---|---|
| Revision: | Description: | Issue date: |
| 0 | Initial Version | 2021-01-19 |

The Notified Body hereby declares that the requirements of Annex IX, Chapter I, Section 2 and 3 of the REGULATION (EU) 2017/745 have been met for the listed products. The above named manufacturer has established and applies a quality management system, which is subject to periodic surveillance, defined by Annex IX, Chapter I, Section 3 of the aforementioned regulation. The requirements of Annex IX, Chapter III are fulfilled. If class III devices or class IIb implantable devices referred to in the second subparagraph of Article 52(4) are covered by this certificate an EU technical documentation assessment certificate according to Chapter II, Section 4.9 is required before placing them on the market.

| | |
|---|---|
| Report No.: | 234155227-40 |
| Effective date: | 2021-01-19 |
| Expiry date: | 2025-10-09 |
| Issue date: | 2021-01-19 |

Benannt durch/Designated by
Zentralstelle der Länder
für Gesundheitsschutz
bei Arzneimitteln und
Medizinprodukten
BS-MDR-091

TÜV Rheinland LGA Products GmbH
Tillystraße 2 · 90431 Nürnberg · Germany

TÜV Rheinland LGA Products GmbH is a Notified Body according to REGULATION (EU) 2017/745 concerning medical devices with the identification number 0197.

1 of 1

## CERTIFICAT
## *CERTIFICATE OF REGISTRATION*
## N° 30851 rev. 0

**Le LNE certifie que le système de management de la qualité développé par**

*LNE certifies that the quality management system developed by*

### WIPRO GE HEALTHCARE PRIVATE Ltd
### N°4, Kadugodi Industrial Area
### BANGALORE 560 067, KARNATAKA  INDIA

**pour les activités**
*for the activities*

**Conception, fabrication et contrôle final d'appareil ou système de
diagnostic par ultrasons, de moniteurs obstétriques, de ventilateur incluant les accessoires
Fabrication et contrôle final d'électrocardiographe, de dispositifs pour nouveaux-nés,
de sondes pour appareils d'échographie (voir addendum)**

*Design, manufacture and final test of
ultrasound diagnostic device or system, obstetrical monitors, ventilator and associated accessories
Manufacture and final test of electrocardiograph, infant care devices, ultrasonic probes (see addendum)*

**réalisées sur le(s) site(s) de**
*performed on the location(s) of*

**WIPRO GE HEALTHCARE PRIVATE Ltd
N°4, Kadugodi Industrial Area - BANGALORE  560 067, KARNATAKA - IND
WIPRO GE HEALTHCARE PRIVATE Ltd
122 (Part 1), John F. Welch Technology Centre - Export Promotional Industrial Park -  WHITEFIELD, BANGALORE
560066 - IND**

**est conforme aux exigences des normes internationales**
*complies with the requirements of the international standards*

## ISO 9001 : 2008

**Début de validité** / *Effective date :* **March 18th, 2016 (included)**
**Valable jusqu'au** / *Expiry date :*     **September 30th, 2018 (included)**
**Etabli le** / *Issued on :* **February 25th, 2016**

**cofrac**

CERTIFICATION
DE SYSTEMES
DE MANAGEMENT
Accréditation n°4-0038
Liste des sites accrédités
et portée disponible sur
www.cofrac.fr

**On behalf of the Certification Director
Cécile VAUGELADE
G-MED Certification Division Manager**

LNE N° 30851–0
Ce certificat est délivré selon les règles de certification G-MED    / This certificate is issued according to the  rules of G-MED certification
LNE/G-MED Organisme notifié pour les Dispositifs Médicaux    / LNE/G-MED Notified Body for Medical Devices

Renouvelle le certificat 7651-8

**Laboratoire national de métrologie et d'essais** • Établissement public à caractère industriel et commercial
LNE/G-MED • Organisme notifié n° 0459
1, rue Gaston Boissier - 75724 Paris Cedex 15 • Tél. : 01 40 43 37 00 • Fax : 01 40 43 37 37 • www.lne.fr • www.gmed.fr

**Addendum au certificat N° 30851 rev. 0**
*Addendum of the certificate N° 30851 rev. 0*
Dossier / *File* N° P128796

page 1 / 1

**Résumé des activités couvertes par le certificat :**
*Summary of activities covered by the certificate :*

**French version :**
Conception, fabrication et contrôle final d'appareil ou système de diagnostic par ultrasons, de moniteurs obstétriques, de ventilateur incluant les accessoires
Fabrication et contrôle final d'électrocardiographe, de dispositifs pour nouveaux-nés, de sondes pour appareils d'échographie

*English version :*
*Design, manufacture and final test of ultrasound diagnostic device or system, obstetrical monitors, ventilator and associated accessories*
*Manufacture and final test of electrocardiograph, infant care devices, ultrasonic probes*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**Ce certificat couvre les activités et les sites suivants :**
*This certificate covers the following activities and sites :*

**WIPRO GE HEALTHCARE PRIVATE Ltd**
**N°4, Kadugodi Industrial Area**
**BANGALORE 560 067, KARNATAKA**
**INDIA**

**French version :**
Fabrication et contrôle final d'appareil ou système de diagnostic par ultrasons, de sondes pour appareils d'échographie, d'électrocardiographe, de moniteur obstétrique, de dispositifs pour nouveaux-nés, de ventilateurs incluant les accessoires.

*English version :*
*Manufacture and final test of ultrasound diagnostic device or system, ultrasonic probes, electrocardiograph, obstetrical monitor, infant care devices, ventilator and associated accessories.*

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**WIPRO GE HEALTHCARE PRIVATE Ltd**
**122 (Part 1), John F. Welch Technology Centre**
**Export Promotional Industrial Park**
**WHITEFIELD, BANGALORE 560066**
**INDIA**

**French version :**
Conception d'appareil ou système de diagnostic par ultrasons, de moniteurs obstétriques, de ventilateur incluant les accessoires

*English version :*
*Design of ultrasound diagnostic device or system, obstetrical monitors, ventilator and associated accessories*

**On behalf of the Certification Director**
**Cécile VAUGELADE**
**G-MED Certification Division Manager**

ADD

720 DM 0701-32 rev 4 du 28/07/2015

**Laboratoire national de métrologie et d'essais** • Établissement public à caractère industriel et commercial
LNE/G-MED • Organisme notifié n° 0459
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**VTT EXPERT SERVICES LTD**

QUALITY SYSTEM

# CERTIFICATE

## ISO 9001:2008 and ISO 13485:2003

### GE Ultrasound Korea, Ltd.

9, Sunhwan-ro 214beon-gil, Jungwon-gu, SEONGNAM-SI

GYEONGGi-DO Republic of Korea

VTT has assessed the company's quality system and
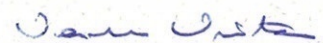found that it meets the requirements of SFS-EN ISO 9001:2008 and SFS EN ISO 13485:2003.
This certificate covers the following functions:

**Design, manufacture, sales, marketing and service operation of patient monitoring systems and related accessories, anaesthesia machine and ventilator related accessories and design of X- ray devices and ultrasound machine.**

Issued: Tampere 29th June 2021

Valid until: 29th June 2024

First issued: 9th May 20015

Veikko Virtanen
VTT Expert Services Ltd

**FINAS**
Finnish Accreditation Service
S021 (EN 45012)
(ISO/IEC Guide 62)

Mika Erjanne
Lead Assessor
VTT Expert Services Ltd

Certificate no.
VTT-C-9520-50-99

Certification body:
VTT Expert Services Ltd
P.O.Box

# LOGIQ P9

## MAKE IT EASY. MAKE IT YOUR OWN

### Product description

The LOGIQ™ P9 is a workhorse for the demanding physician. Its flagship imaging engine is the foundation for finding the root of the patient's problem, even in difficult patients. Buttons on the transducer turn three-handed procedures into two-handed procedures, giving the physician more control. It all adds up to a system that's walk-up easy-to-use on day one and for the most challenging procedures.

# General Specification

| Dimensions and Weight | |
|---|---|
| Height | Articulating monitor arm 1,345mm~1,595mm (53.0 in ~ 62.8 in) |
| Width | Keyboard: 430 mm (16.9 in) Foot cover: 495 mm (19.5 in) Monitor: 545mm [23.8inch Bezel-less LCD] |
| Depth | Foot cover: 685 mm (27.0 in) Rear handle: 740 mm (29.1 in) |
| Weight (max. load) | 83 kg/183 lbs |
| Weight (min. load) | 67 kg/148 lbs |

| Electrical Power | |
|---|---|
| Voltage | 100 – 240 Vac |
| Frequency | 50/60 Hz |
| Power consumption maximum of 500 VA with peripherals | |

| Console design |
|---|
| 4 active probe ports (3 x RS and 1 x DLP) |
| Integrated Solid State Drive |
| Integrated DVD multi-drive (option) |
| On board storage for BW printer |
| Integrated speakers |
| Probe holders |
| Front handle |
| Gel warmer (option) |
| Rear handle (option) |
| Probe light |

# User Interface

| Operator Keyboard |
|---|
| Ergonomic full size keyboard |
| Swivel-adjustable, height-adjustable |
| Digital TGC and digital A/N keyboard |
| Physical A/N keyboard (option) |
| 10.4" LCD touch screen |

| Monitor |
|---|
| 23.8inch Bezel-less LCD LED backlight monitor |

# System Overview

| Applications |
|---|
| Abdominal |
| Obstetrical |
| Gynecological |
| Breast |
| Small parts |
| Musculoskeletal |
| Vascular |
| Urological |
| Pediatric & Neonatal |
| Intraoperative[4] |
| Cardiac |
| Transcranial |
| Endocavitary (transvaginal, transrectal) |
| Transesophageal |

| Scanning Methods |
|---|
| Electronic sector |
| Electronic convex |
| Electronic micro convex |
| Electronic linear |
| Real-time 4D volume sweep |

| Transducer Types |
|---|
| Sector phased array |
| Convex array |
| Microconvex array |
| Linear array |
| Matrix array |
| Single CW (pencil) probes |
| Volume probes (4D) |

| Operating Modes |
|---|
| B-Mode |
| Coded Harmonic Imaging |
| M-Mode |
| Color Flow Mode (CFM) |
| Power Doppler Imaging (PDI) |
| PW Doppler with high PRF |
| M-Color Flow Mode |
| Anatomical M-Mode |
| Curved Anatomical M-Mode |
| B-Flow™/B-Flow Color (option) |
| Extended Field of View (LOGIQView option) |
| Coded Contrast Imaging[2] (option) |
| CW Doppler Mode (option) |
| TVI Mode (option) |
| Strain Elastography (option) |
| Shear Wave Elastography (option) |
| 3D/4D Volume Modes (option) |
| HD*live*™ (option) |
| Offline Scanning Mode (option) |
| B-Steer + (option) |
| UGAP (option) |

| System Standard Features |
|---|
| Advanced User Interface with High Resolution 10.4" wide LCD Touch Screen |
| Automatic Optimization |
| CrossXBeam™ Compounding |
| Speckle Reduction Imaging (SRI-HD) |
| Fine Angle Steering |
| Coded Harmonic Imaging |

Virtual Convex
Patient Information Database
Image Archive on Integrated CD/DVD (option) and SSD
Raw Data Analysis
Real-time Automatic Doppler Calculations
OB Calculations
Fetal Trending
Email to MMS
MyTrainer+
Privacy and Security
Qpath
Tricefy
Multigestational Touch Control
InSite™ Capability
IOTA (International Ovarian Tumor Analysis) LR2 worksheet[4]
Vnav Import
Doppler Assistant
MyPreset
SonoRenderLive

## System Options

Auto IMT
Advanced 3D
Cable hook rear
Card reader mounting kit
Strain Elastography
Elastography Quantification[3]
DICOM (DICOM® 3.0 Connectivity)
LOGIQView
B-Flow/B-Flow Color
CF/PDI Quantification (FlowQA)
Breast Productivity Package
Thyroid Productivity Package
Measure Assist OB
AutoEF
B Steer+
Stress Echo
Tissue Velocity Imaging (TVI) with Q-Analysis
Scan Assistant
Compare Assistant
Report Writer
Cardiac Strain
STIC
OmniView
Shear Wave Elastography[4]
LOGIQ P Apps
HD*live*™
Coded Contrast (CEUS)
HRES CEUS
Koios Breast Lesion Decision Support[4]
Koios Thyroid Lesion Decision Support[4]
Hepatic Assistant[4]
Digital Expert[4]
UGAP
Software DVR Basic

Software DVR
SonoAVC
SonoNT/SonoIT
Start Assistant

## Peripheral Options

| Integrated options for | • Digital BW thermal printer<br>• HDMI output available for compatible devices<br>• S-Video output available for compatible devices<br>• Wireless LAN card for wireless data transfer<br>• External USB printer connection<br>• Power Assistant (battery or extended battery option) for offline scanning |

Digital color thermal printer
Foot switch with programmable functionality
Universal video converter
Barcode reader[4]
LOGIQ P Apps (Bluetooth)
Ethernet protection cable[4]

## Display Modes

Live and stored display format: full size and split screen – both with "thumbnails" for still and Cine
Review image format: 4x4 and "thumbnails" for still and Cine
Simultaneous capability
B or CrossXBeam/PW
B or CrossXBeam/CFM or PDI
B/M
B/CrossXBeam
Real-time Triplex Mode (B or CrossXBeam + CFM or PDI/PW or CW (option)
Selectable Alternating Modes
B or CrossXBeam/PW
B or CrossXBeam + CFM (PDI)/PW(CW (option))
B/CW (option)
Multi-image (split/quad screen)
Live and/or frozen
B or CrossXBeam + B or CrossXBeam/CFM or PDI
Independent Cine playback
Timeline display
Independent dual B or CrossXBeam/PW display
CW

| Display formats | • Top/bottom selectable format<br>• Side/side selectable format |

Virtual convex
Timeline only

| Display Annotation | |
|---|---|
| Patient Name: first, last and middle | |
| Patient ID | |
| Alternate patient ID | |
| Age, sex and birth date | |
| Hospital name | |
| Date format:<br>3 types selectable | • MM/DD/YY<br>• DD/MM/YY<br>• YY/MM/DD |
| Time format:<br>2 types selectable | • 24 hours<br>• 12 hours |
| Gestational age from | • LMP<br>• GA<br>• EDD<br>• BBT |
| Displayed acoustic output | • TIS: Thermal Index Soft Tissue<br>• TIC: Thermal Index Cranial (Bone)<br>• TIB: Thermal Index Bone<br>• MI: Mechanical Index |

% of maximum power output
Probe name
Map names
Probe orientation
Depth scale marker
Lateral scale marker
Focal zone markers
Image depth
Zoom depth
B-Mode
Gain
Dynamic range
Imaging frequency
Frame averaging
Acoustic frame rate
Gray map
SRI-HD
M-Mode
Gain
Dynamic range
Time scale
Doppler mode
Gain
Angle
Sample volume depth and width
Wall filter
Velocity and/or frequency scale
Spectrum inversion
Time scale
PRF
Doppler frequency
Color Flow Mode
Line density
Frame averaging
Packet size

| Color scale: 3 types | • Power<br>• Directional PDI<br>• Symmetrical velocity imaging |
|---|---|

Color velocity range and baseline
Color threshold marker
Color gain
PDI
Inversion
Doppler frequency
TGC curve
Cine gage, image number/frame number
Body pattern: multiple human and animal types
Application name
Measurement results
Operator message
Biopsy guide line and zone
Heart rate

# General System Parameters

| System Setup |
|---|
Pre-programmable categories
User programmable preset capability
Factory default preset data
Languages: English, French, German, Spanish, Italian, Portuguese, Russian, Greek, Swedish, Danish, Dutch, Finnish, Norwegian, Japanese (message only), Chinese (message only)
OB report formats including Tokyo Univ., Osaka Univ., USA, Europe, and ASUM
User defined annotations
Body patterns
Customized comment home position
Reset

| Complete User Manual Available On-Board Through Help (F1) |
|---|
User manual and service manual are included on USB with each system. A printed manual is available upon request.

| CINE Memory/Image Memory |
|---|
776 MB of Cine memory
Selectable cine sequence for Cine review
Prospective Cine mark
Measurements/calculations and annotations on Cine playback
Scrolling timeline memory
Dual image Cine display
Quad image Cine display
Cine gauge and Cine image number display
Cine review loop
Cine review speed

| Image Storage |
|---|

On-board database of patient information from past exams

| Storage formats: | • DICOM – compressed/ uncompressed, single/ multiframe, with/without raw data<br>• Export JPEG, JPEG2000, WMV, MPEG 4 and AVI formats |
| --- | --- |
| Storage devices: | • USB memory Stick: 64 MB<br>to 4 GB (for exporting individual images/clips)<br>• CD-R storage: 700 MB<br>• DVD storage: -R (4.7 GB)<br>• Solid state drive image storage:~345GB |

Compare old images with current exam
Reload of archived data sets

## Connectivity & DICOM

Ethernet network connection
DICOM 3.0 (option)
Wireless LAN[4] (option)
Verify
Print
Store
Modality worklist
Storage commitment
Modality Performed Procedure Step (MPPS)
Media exchange
Off network/mobile storage queue
Query/retrieve

| Public SR template | • Structured reporting – compatible with vascular and OB standard<br>• Direct export DICOM SR and XML |
| --- | --- |

Remote capability InSite™ ExC
DICOM directory import
LOGIQ P Apps (Option)

## Physiological Input Panel (Option)

Physiological input
ECG, 2 lead
Dual R-Trigger
Pre-settable ECG R delay time
Pre-settable ECG position
Adjustable ECG gain control
Automatic heart rate display

## Report Writer (Option)

On-board reporting package automates report writing
Formats various exam results into a report suitable for printing or reviewing on a standard PC

Exam result reports can include patient info, exam info, measurements, calculations, images, comments and physician diagnosis
Standard templates provided
Customizable templates
Thyroid reporting template

## Scanning Parameters

Displayed imaging depth: 0 – 48 cm
Minimum depth of field: 0 – 1 cm (zoom) (probe dependent)
Maximum depth of field: 0 – 48 cm (probe dependent)
Continuous dynamic receive focus/continuous dynamic
Receive aperture
Adjustable dynamic range
Adjustable Field of View (FOV)
Image reverse: right/left
Image rotation of 0°, 90°, 180°, 270°

## Digital B-Mode

| Adjustable: | • Acoustic power<br>• Gain<br>• Dynamic range<br>• Frame averaging<br>• Gray scale map<br>• Frequency<br>• Line density<br>• Scanning size (FOV or angle –<br>depending on the probe, see probe specifications)<br>• B colorization<br>• Reject<br>• Suppression<br>• SRI-HD<br>• Edge enhance |
| --- | --- |

## Digital M-Mode

| Adjustable: | • Acoustic power<br>• Gain<br>• Dynamic range<br>• Gray scale map<br>• Frequency<br>• Sweep speed<br>• M colorization<br>• M display format<br>• Rejection |
| --- | --- |

## Anatomical M-Mode

M-Mode cursor adjustable at any plane
Can be activated from a Cine loop from a live or stored image
M and A capability
Available with Color Flow Mode
Curved Anatomical M-Mode

## Digital Spectral Doppler Mode

Adjustable:
- Acoustic power
- Gain
- Dynamic range
- Gray scale map
- Transmit frequency
- Wall filter
- PW colorization
- Velocity scale range
- Sweep speed
- Sample volume length
- Angle correction
- Steered linear
- Spectrum inversion
- Trace method
- Baseline shift
- Doppler auto trace
- Time resolution
- Compression
- Trace direction
- Trace sensitivity

## Digital Color Flow Mode

Adjustable:
- Acoustic power
- Color maps, including velocity-variance maps
- Gain
- Velocity scale range
- Wall filter
- Packet size
- Line density
- Spatial filter
- Steering angle
- Baseline shift
- Frame average
- Threshold
- Accumulation mode
- Sample volume control
- Flash suppression
- Quantification (option)

## Digital Power Doppler Imaging

Adjustable:
- Acoustic power
- Color maps including velocity-variance maps
- Gain
- Velocity scale range
- Wall filter
- Packet size
- Line density
- Spatial filter
- Steering angle
- Frame average
- Threshold
- Accumulation mode
- Sample volume control
- Flash suppression

## Continuous Wave Doppler (Option)

Adjustable:
- Acoustic power
- Gain
- Dynamic range
- Gray scale map
- Transmit frequency
- Wall filter
- CW colorization
- Velocity scale range
- Sweep speed
- Angle correction
- Spectrum inversion
- Trace method
- Baseline shift
- Doppler auto trace
- Compression
- Trace direction
- Trace sensitivity

Available on 3Sc-RS, 6S-RS, 12S-RS, 6Tc-RS, P2D, P6D and P8D probes

## Automatic Optimization

Optimize B-Mode image to improve contrast resolution

Selectable amount of contrast resolution improvement (low, medium, high)

Auto TGC

| Auto-spectral optimize adjusts | • Baseline<br>• Invert<br>• PRF (on live image)<br>• Angle correction |
|---|---|

## Coded Harmonic Imaging

Available on all 2D probes and 4D probes

## B-Flow/B-Flow Color (Option)

Available on C1-5-RS, 8C-RS, L6-12-RS, 12L-RS, 9L-RS, ML6-15-RS, L8-18i-RS, L4-12t-RS, L10-22-RS, L3-9i-RS, L3-12-RS, E8CS-RS, IC9-RS, BE9CS-RS, C1-6-D, C2-7-D and 10C-D probes

Background: on/off

Sensitivity/PRI

Line density

Edge enhance

Frame average

Gray scale map

Tint map

Dynamic range

Rejection

Gain

| Hybrid B-Flow | • Supported on C1-5-RS, 12L-RS, 9L-RS, ML6-15-RS, L4-12t-RS, L3-12-RS, C1-6-D, C2-7-D and 10C-D probes |
|---|---|

|  | • B & B-Flow simultaneous dual display • B & B-Flow overlay display |
|---|---|
| B-Flow Color (BFC) | |
| B-Flow High Definition Color (HD Color) | Supported on C1-5-RS, 12L-RS, ML6-15-RS, L4-12t-RS, L3-12-RS and C1-6-D probes |

Accumulation

## Coded Contrast Imaging (Option)

Available on C1-5-RS, 3Sc-RS, IC9-RS, BE9CS-RS, 9L-RS, C1-6-D and C2-7-D probes

2 contrast timers

Timed updates: 0.05 – 10 seconds

Accumulation mode, six levels

Maximum Enhance Mode

Flash

Time Intensity Curve (TIC) Analysis

Auto MI control

The LOGIQ P9 is designed for compatibility with commercially available ultrasound contrast agents. Because the availability of these agents is subject to government regulation and approval, product features intended for use with these agents may not be commercially marketed nor made available before the contrast agent is cleared for use. Contrast related product features are enabled only on systems for delivery to an authorized country or region of use

## LOGIQ View (Option)

Extended Field of View imaging

Available on C1-5-RS, 8C-RS, L6-12-RS, 12L-RS, 9L-RS, ML6-15-RS, L8-18i-RS, L4-12t-RS, L10-22-RS, L3-9i-RS, L3-12-RS, E8C-RS, E8CS-RS, IC9-RS, BE9CS-RS, RIC5-9A, 6Tc-RS, RAB2-6-RS, 3SC-RS,6S-RS,12S-RS, C1-6-D, C2-7-D and 10C-D probes

For use in B-Mode

CrossXBeam is available on linear probes

Auto detection of scan direction

Pre or post-process zoom

Rotation

Auto fit on monitor

Measurements in B-Mode

## 3D

Allows unlimited rotation and planar translations

3D reconstruction from Cine sweep

## Advanced 3D (Option)

Acquisition of color data

Automatic rendering

3D landscape technology

3D movie

## Real-time 4D (Option)

| Acquisition modes | · Real-time 4D · Static 3D |
|---|---|
| Visualization modes | · 3D rendering (diverse surface and intensity projection modes) · Sectional planes (three section planes perpendicular to each other) · Volume contrast imaging-static (option) · Tomographic ultrasound imaging (option) |
| Render mode | Surface texture, surface smooth, max-, min- and X-ray (average intensity projection), mix mode of two render modes |

Curved 3 point render start

3D movie

Scalpel: 3D cut tool

| Display format | · Quad: A-/B-/C-Plane/3D · Dual: A-Plane/3D · Single: 3D or A- or B- or C-Plane |
|---|---|

Automated Volume Calculation  –  VOCAL II (option)

Betaview

Auto sweep

STIC (option)

HD*live*™ (option)

VCI Static (option)

| Omniview (option) | VCI OmniView |
|---|---|

## Scan Assistant (Option)

Factory programs

User defined programs

Steps include image annotations, mode transitions, basic imaging controls and measurement initiation

## Shear Wave Elastography (Option)

Available on the following probes: C1-5-RS, L3-12-RS, IC9-RS, ML6-15-RS, C1-6-D and 12L-RS probes

User programmable measurement display in kPa and meters per sec

Single and dual view display

## B Steer+ (Option)

Available on C1-5-RS, 8C-RS, L6-12-RS, 12L-RS, 9L-RS, ML6-15-RS, L4-12t-RS, L3-12-RS, RAB2-6-RS, C1-6-D, C2-7-D and 10C-D probes

## Strain Elastography (Option)

Available on C1-5-RS, L6-12-RS, 12L-RS, ML6-15-RS, L4-12t-RS, L3-12-RS, IC9-RS, E8CS-RS, BE9CS-RS, 9L-RS and C1-6-D probes

Semi-Quantification[3]

## TVI (Option)

Myocardial doppler imaging with color overlay on tissue image

Available on the sector probes

Tissue color overlay can be removed to show just the 2D image, still retaining the tissue velocity information

Curved anatomical M-Mode: free (curved) drawing of M-Mode generated from the cursor independent from the axial plane

Q-Analysis: multiple time motion trace display from selected points in the myocardium

## Stress Echo (Option)

Advanced and flexible Stress Echo examination capabilities

Provides exercise and pharmacological protocol templates

8 default templates

Template editor for user configuration of existing templates or creation of new templates

Reference scan display during acquisition for stress level comparison (dual screen)

Baseline level/previous level selectable

Raw data continuous capture

Over 100 sec. available

Wall motion scoring (bulls-eye and segmental)

Smart stress: automatically set up various scanning parameters (for instance, geometry, frequency, gain, etc.) according to same projection on previous level

## Compare Assistant (Option)

Allows side-by-side comparison of previous ultrasound and other modality exams during live scanning

## Power Assistant (Option)

Allows moving the system without a complete system shutdown and boot-up power cycle

Extended battery for off line scanning (option) provides battery powered live scanning

## Breast Productivity Package (Option)

Worksheet summary includes measurements and locations for nodule, parathyroid and lymph node

Feature assessment

BI-RADS® assessment

User editable

## Thyroid Productivity Package (Option)

Worksheet summary includes measurements and locations for nodule, parathyroid and lymph node

Feature assessment

User editable

## Auto EF (Option)

Allows semi-automatic measurement of the global EF (Ejection fraction)

User editable

## Cardiac Strain (Cardiac AFI) (Option)

Allows assessing the left ventricle with all segments at a glance by combining three longitudinal views into one comprehensive bulls-eye view

2D strain based data moves into clinical practice

## Virtual Convex

Provides a convex Field of View

Compatible with CrossXBeam

Available on all linear and sector transducers

## SRI-HD

Speckle Reduction Imaging

Provides multiple levels of speckle reduction

Compatible with side-by-side DualView display

Compatible with all linear, convex and sector transducers

Compatible with B-Mode, color, contrast agent and 3D imaging

## CrossXBeam

Provides 3, 5, 7 or 9 angles of spatial compounding

Live side-by-side DualView display

| Compatible with: | • Color Mode |
| | • PW |
| | • SRI-HD |
| | • Coded harmonic imaging |
| | • Virtual convex |

Available on C1-5-RS, 8C-RS, L6-12-RS, 12L-RS, 9L-RS, ML6-15-RS, L8-18i-RS, L4-12t-RS, L10-22-RS, L3-9i-RS, L3-12-RS, E8C-RS, E8CS-RS, BE9CS-RS, IC9-RS, RIC5-9A-RS, RAB2-6-RS, C1-6-D, C2-7-D and 10C-D probes

## Controls Available While "Live"

Write zoom
B/M/CrossXBeam Mode
Gain
TGC
Dynamic range
Acoustic output
Transmission focus position
Transmission focus number
Line density control
Sweep speed for M-Mode
Number of angles for CrossXBeam
PW-Mode
Gain
Dynamic range
Acoustic output
Transmission frequency
PRF
Wall filter
Spectral averaging

| Sample volume gate | • Length |
| | • Depth |

Velocity scale
Color Flow Mode
CFM gain
CFM velocity range
Acoustic output
Wall echo filter
Packet size
Frame rate control
CFM spatial filter
CFM frame averaging
CFM line resolution
Frequency/velocity baseline shift

**Controls Available on "Freeze" or Recall**

Automatic optimization
SRI-HD
CrossXBeam – display non-compounded and compounded
image simultaneously in split screen
3D reconstruction from a stored Cine loop
B/M/CrossXBeam Mode
Gray map optimization
TGC
Colorized B and M
Frame average (loops only)
Dynamic range: Anatomical M-Mode
Max Read Zoom to 20x: baseline shift
Sweep speed
PW Mode
Gray map
Post gain
Baseline shift
Sweep speed
Invert spectral wave form
Compression
Rejection

Colorized spectrum
Display format
Doppler audio
Angle correct
Quick angle correct
Auto angle correct
Color flow
Overall gain (loops and stills)
Color map
Transparency map
Frame averaging (loops only)
Flash suppression
CFM display threshold
Spectral invert for Color/Doppler
Anatomical M-Mode on Cine loop

# Measurements/Calculations

**General B-Mode**

Depth and distance
Circumference (ellipse/trace)
Area (ellipse/trace)
Volume (ellipsoid)
% Stenosis (area or diameter)
Angle between two lines

**General M-Mode**

M-Depth
Distance
Time
Slope
Heart rate

**General Doppler Measurements/Calculations**

Velocity
Time
A/B ratio (velocities/frequency ratio)
PS (Peak Systole)
ED (End Diastole)
PS/ED (PS/ED ratio)
ED/PS (ED/PS ratio)
AT (Acceleration Time)
ACCEL (Acceleration)
TAMAX (Time Averaged Maximum Velocity)
Volume Flow (TAMEAN and vessel area)
Heart rate
PI (Pulsatility Index)
RI (Resistivity Index)

**Real-time Doppler Auto Measurements/Calculations**

PS (Peak Systole)
ED (End Diastole)
MD (Minimum Diastole)
PI (Pulsatility Index)
RI (Resistivity Index)
AT (Acceleration Time)

ACC (Acceleration)
PS/ED (PS/ED ratio)
ED/PS (ED/PS ratio)
HR (Heart Rate)
TAMAX (Time Averaged Maximum Velocity)
PVAL (Peak Velocity Value)
Volume Flow (TAMEAN and vessel area)

## OB Measurements/Calculations

| Gestational age by: | • GS (Gestational Sac)<br>• CRL (Crown Rump Length)<br>• FL (Femur Length)<br>• BPD (Biparietal Diameter)<br>• AC (Abdominal Circumference)<br>• HC (Head Circumference)<br>• APTD x TTD (Anterior/ Posterior Trunk Diameter by Transverse Trunk Diameter)<br>• FTA (Fetal Trunk cross-sectional Area)<br>• BD (Binocular Distance)<br>• HL (Humerus Length)<br>• FT (Foot Length)<br>• OFD (Occipital Frontal Diameter)<br>• TAD (Transverse Abdominal Diameter)<br>• TCD (Transverse Cerebellum Diameter)<br>• THD (Thorax Transverse Diameter)<br>• TIB (Tibia Length)<br>• ULNA (Ulna Length) |
| --- | --- |
| Estimated fetal weight (EFW) by: | • AC, BPD<br>• AC, BPD, FL<br>• AC, BPD, FL, HC<br>• AC, FL<br>• AC, FL, HC<br>• AC, HC<br>• BPD, APTD, TTD, FL<br>• BPD, APTD, TTD, SL |
| Calculations and ratios | • FL/BPD<br>• FL/AC<br>• FL/HC<br>• HC/AC<br>• CI (Cephalic Index)<br>• AFI (Amniotic Fluid Index)<br>• CTAR (Cardio-Thoracic Area Ratio)<br>• MCA PS(Middle Cerebral Artery Peak Systolic Velocity)<br>• MCA CP(Middle Cerebral Artery Pulsatility Index Over Umbilical Artery Pulsatility Index Ratio)<br>• MCA PI(Middle Cerebral PI)<br>• MCA RI(Middle Cerebral RI)<br>• UmbArt PI(Umbilical artery PI)<br>• UmbArt RI(Umbilical artery RI)<br>• UtArt PI(Uterine artery PI)<br>• UtArt RI(Uterine artery RI) |

Measurements/calculations by: ASUM, ASUM 2001, Berkowitz, Bertagnoli, Brenner, Campbell, CFEF, Chitty, Eik-Nes, Ericksen, Goldstein, Hadlock, Hansmann, Hellman, Hill, Hohler, Jeanty, JSUM, Kurtz, Mayden, Mercer, Merz, Moore, Nelson, Osaka University, Paris, Rempen, Robinson, Shepard, Shepard/Warsoff, Tokyo University, Tokyo/Shinozuka, Yarkoni

Fetal graphical trending
Growth percentiles
Multi-gestational calculations (4)
Fetal qualitative description (anatomical survey)
Fetal environmental description (biophysical profile)
Programmable OB tables
Over 20 selectable OB calculations
Expanded worksheets

## GYN Measurements/Calculations

Right ovary length, width, height
Left ovary length, width, height
Uterus length, width, height
Cervix length, trace
Ovarian volume
ENDO (Endometrial Thickness)
Ovarian RI
Uterine RI
Follicular measurements
Summary reports
IOTA (International Ovarian Tumor Analysis) LR2 worksheet[4]

## Vascular Measurements/Calculations

SYS DCCA (Systolic Distal Common Carotid Artery)
DIAS DCCA (Diastolic Distal Common Carotid Artery)
SYS MCCA (Systolic Mid Common Carotid Artery)
DIAS MCCA (Diastolic Mid Common Carotid Artery)
SYS PCCA (Systolic Proximal Common Carotid Artery)

DIAS PCCA (Diastolic Proximal Common Carotid Artery)
SYS DICA (Systolic Distal Internal Carotid Artery)
DIAS DICA (Systolic Distal Internal Carotid Artery)
SYS MICA (Systolic Mid Internal Carotid Artery)
DIAS MICA (Diastolic Mid Internal Carotid Artery)
SYS PICA (Systolic Proximal Internal Carotid Artery)
DIAS PICA (Diastolic Proximal Internal Carotid Artery)
SYS DECA (Systolic Distal External Carotid Artery)
DIAS DECA (Diastolic Distal External Carotid Artery)
SYS PECA (Systolic Proximal External Carotid Artery)
DIAS PECA (Diastolic Proximal External Carotid Artery)
VERT (Systolic Vertebral Velocity)
SUBCLAV (Systolic Subclavian Velocity)
Automatic IMT
Summary Report

## Urological Calculations
Bladder volume
Prostate volume
Left/right renal volume
Generic volume
Post-void bladder volume

# Probes

## LOGIQ P9
C1-5-RS, 8C-RS, E8C-RS, E8CS-RS, IC9-RS, BE9CS-RS, ML6-15-RS, L3-12-RS, L4-12t-RS, 12L-RS, L6-12-RS, 9L-RS, L10-22-RS, L8-18i-RS, 3Sc-RS, 6S-RS, 12S-RS, RAB2-6-RS, RIC5-9A-RS, P8D, P6D, P2D, L3-9i-RS,6Tc-RS, C1-6-D, C2-7-D and 10C-D probes

## C1-5-RS
Convex probe

| Applications | Abdomen (incl. Pleural), Vascular (No transcranial), OB/GYN, Urology |
|---|---|
| Biopsy guide | Multi-angle, disposable with a reusable bracket (H40432LE) |

## 8C -RS
Micro convex probe

| Applications | Pediatrics, Neonatal |
|---|---|
| Biopsy guide | N/A |

## E8C-RS
Endocavitory micro convex probe

| Applications | OB/GYN (Transvaginal), Urology (Transrectal) |
|---|---|

| Biopsy guide | Single-angle, disposable with a disposable bracket (E8385MJ, E8333JB), single-angle, reusable bracket (H40412LN) |
|---|---|

## E8CS-RS
Endocavitory micro convex probe

| Applications | OB/GYN (Transvaginal), Urology (Transrectal) |
|---|---|
| Biopsy guide | Single-angle, disposable with a disposable bracket (E8385MJ, E8333JB), single-angle, reusable bracket (H40412LN) |

## IC9-RS
Endocavitory micro convex probe

| Applications | OB/GYN, Urology (Transvaginal, Transrectal) |
|---|---|
| Biopsy guide | Single-angle, disposable with a disposable bracket (H48691YW), single-angle, reusable bracket (H48701MN) |

## BE9CS-RS
Endocavitory micro convex probe

| Applications | Urology (Transrectal) |
|---|---|
| Biopsy guide | Single-angle, disposable with a disposable bracket (E8387M, H42742LH, H42742LJ), single-angle, reusable bracket (E8387MA) |

## ML6-15-RS
Matrix array linear probe

| Applications | Small Parts, Vascular Vascular (No transcranial), Pediatric, Neonatal, Musculoskeletal |
|---|---|
| Biopsy guide | Multi-angle, disposable with a reusable bracket (H40432LJ) |

## L3-12-RS
Linear probe

| Applications | Abdomen (incl. Pleural), Vascular (No transcranial), Small Parts, |
|---|---|

|  |  |
|---|---|
|  | Pediatric, Neonatal, Breast |
| Biopsy guide | Multi-Angle, disposable with a reusable bracket (H48302AA) |

## L4-12t-RS
Linear probe

|  |  |
|---|---|
| Applications | Abdomen (incl. Pleural), Small Parts, Vascular (No transcranial), Pediatric, Neonatal, Musculoskeletal, Breast |
| Biopsy guide | Multi-angle, disposable with a reusable bracket (H40432LC) single-angle, disposable with a reusable bracket (H48392LT: free hand, H48392LL: transverse) |

## 12L-RS
Linear probe

|  |  |
|---|---|
| Applications | Small Parts, Vascular (No transcranial), Pediatric, Neonatal, Musculoskeletal |
| Biopsy guide | Multi-angle, disposable with a reusable bracket (H40432LC) |

## L6-12-RS
Linear probe

|  |  |
|---|---|
| Applications | Abdomen (incl. Pleural), Vascular (No transcranial), Small Parts, Pediatric, Neonatal |
| Biopsy guide | Multi-angle, disposable with a reusable bracket (H40432LC) |

## 9L-RS
Linear probe

|  |  |
|---|---|
| Applications | Abdomen (incl. Pleural), Small Parts, Vascular (No transcranial), Pediatric |
| Biopsy guide | Multi-angle, disposable with a reusable bracket (H4906BK) |

## L10-22-RS
Linear probe

|  |  |
|---|---|
| Applications | Small Parts, Musculoskeletal, Neonatal |
| Biopsy guide | N/A |

## L8-18i-RS
Linear probe

|  |  |
|---|---|
| Applications | Small Parts, Vascular (No transcranial), Neonatal, Pediatrics, Intraoperative[4], Musculoskeletal, Peripheral Vascular |
| Biopsy guide | N/A |

## 3Sc-RS
Phased array sector probe

|  |  |
|---|---|
| Applications | Cardiac, Abdomen (incl. Pleural), Transcranial |
| Biopsy guide | Multi-angle, disposable with a reusable bracket (H46222LC) |

## 6S -RS
Phased array sector probe

|  |  |
|---|---|
| Applications | Cardiac, Pediatrics, Neonatal |
| Biopsy guide | N/A |

## 12S -RS
Phased array sector probe

|  |  |
|---|---|
| Applications | Pediatrics, Neonatal |
| Biopsy guide | N/A |

## RAB2-6-RS
Convex volume probe

|  |  |
|---|---|
| Applications | Abdomen, OB/GYN, Urology |
| Biopsy guide | Multi-angle, disposable with reusable bracket (H48681ML) |

## RIC5-9A-RS
Endocavitory micro convex volume probe

|  |  |
|---|---|
| Applications | OB/GYN (Transvaginal), Urology (Transrectal) |
| Biopsy guide | Single-angle, disposable with a disposable bracket (H48681GF), single-angle, reusable bracket (H46721R) |

## P8D
CW split crystal probe

|  |  |
|---|---|
| Applications | Cardiac, Vascular (No transcranial) |

## P6D
CW split crystal probe

| | |
|---|---|
| Applications | Cardiac, Vascular (No transcranial) |

| **P2D** | |
|---|---|
| CW split crystal probe | |
| Applications | Cardiac, Vascular (No transcranial) |

| **L3-9i-RS** | |
|---|---|
| Linear probe | |
| Applications | Small Parts, Vascular, Musculoskeletal, Intraoperative[4] |
| Biopsy guide | N/A |

| **6Tc-RS** | |
|---|---|
| TEE Sector (Trans-esophageal) Probe | |
| Applications | Cardiac (Transesophageal) |
| Biopsy guide | N/A |

| **C1-6-D** | |
|---|---|
| Convex probe | |
| Applications | Abdomen (incl. Pleural), Vascular (No transcranial), OB/GYN, Urology |
| Biopsy guide | Multi-angle, disposable with a reusable bracket (H4913BB) |

| **C2-7-D** | |
|---|---|
| Convex probe | |
| Applications | Abdomen (incl. Pleural) |
| Biopsy guide | Multi Angle, disposable with a reusable bracket (H40482LK), Multi Angle, reusable bracket (H404822LL) |

| **10C-D** | |
|---|---|
| Micro Convex probe | |
| Applications | Pediatric, Neonatal, Vascular (No transcranial) |
| Biopsy guide | N/A |

| **Inputs and Outputs** |
|---|
| HDMI out |
| Ethernet network (RJ45) |
| S-video out |
| Composite video out |
| USB (2x in front (USB 3.0), 3x in rear |
| AC power input |

# Safety Conformance

| **The LOGIQ P9 is:** |
|---|
| Conforms to the following standards for safety: |
| Classified to ANSI/AAMI ES60601-1 2005 R1 2012 Medical Electrical Equipment, Part 1: General Requirements for Safety by a Nationally Recognized Test Lab |
| Certified to CSA CAN/CSA-C22.2 NO. 60601-1 :14 General requirements for safety |
| CE Marked to Council Directive 93/42/EEC on Medical Devices |
| • IEC/EN 60601-1 3.1 Edition. Medical electrical equipment – Part 1: General requirements for basic safety and essential performance |
| • IEC/EN 60601-1-2 Medial electrical equipment – Part 1-2: General requirements for safety Collateral Standard: Electromagnetic compatibility – requirements and tests |
| • IEC/EN 60601-1-6 Medical electrical equipment Part 1 -6: General requirements for basic safety and essential performance – Collateral Standard: Usability |
| • IEC/EN 60601-2-37 Medical electrical equipment – Part 2-37: Particular requirements for the safety of ultrasonic medical diagnostic and monitoring equipment |
| • IEC 61157 (Standard means for the reporting of the acoustic output of medical diagnostic ultrasonic equipment) |
| • IEC/EN 62366 Application of usability engineering to medical devices |
| • IEC/EN 62304 Software Life Cycle Processes |
| • IEC/EN 62359 Ultrasonic - Field characterization - Test methods for the determination of thermal and mechanical indices related to medical diagnostic ultrasonic fields |
| • EN ISO 15223-1: Symbols to be used with medical device labels, labelling and information to be supplied |
| • ISO 10993-1 Biological evaluation of medical devices – Part 1 Evaluation and testing |
| • ISO14971:2012(Medical devices - Application of risk management to medical devices) |
| • EMC Emissions Group 1, class A, Class B device requirements as per Sub clause 4.2 of CISPR 11 |
| • WEEE (Waste Electrical and Electronic Equipment) |
| • ROHS according to 2011/65/EU Including national deviations |
| • Wireless equipment shall be certified to FCC, RED and Japan Radio Law |
| •Medical Device Good Manufacturing Practice Manual issued by the FDA (Food and Drug Administration, Department of Health, USA). |

1. The LOGIQ P10 is a highly mobile and easy to use, performance multi-purpose color doppler imaging system, designed for Abdominal, Small Parts, Musculoskeletal, Breast, Vascular, Cardiology, Transcranial, Urology, Pediatric, Neonatal, Obstetrics Transesophageal and Gynecology applications.

2. Contrast Enhanced Ultrasound is available in the U.S. for characterization of focal liver lesions and left ventricle opacity only.

3. Elastography with semi-Quantification (Elastography Quantification) described in this material has not been cleared by the U.S. FDA and is not available for promotion or sale in the United States.

4. Available on region regulatory clearance

## Imagination at work

Product may not be available in all countries and regions. Full product technical specification is available upon request. Contact a GE Healthcare Representative for more information. Please visit www.gehealthcare.com/promotional-locations

Data subject to change.

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