Voluson Expert 22

DATA SHEET

GE Healthcare

Voluson™

A Healthier Future for Women

Product description
The Voluson Expert 22 is a premium imaging platform that combines extraordinary image quality with our superb volume ultrasound technology.

The Voluson Expert 22 is for clinical trailblazers who want to continue to set new limits in women's healthcare. Our powerful and adaptive Lyric Architecture combined with unmatched probe technology and progressive imaging tools will help find answers to complex cases earlier. The classic, modern Voluson design with AI features supports efficient workflow increasing satisfaction and daily activities. All this combined with support excellence in service, education, and security. The Voluson Expert 22, for pioneers. For groundbreakers. Because like you, we don't just hope for a healthier future for women. We insist on creating it.

Highlights

- Lyric Architecture - Graphic Based Beamforming
- High Definition Ultrasound (HDU) 23.8" Monitor
- Radiant*flow*, Slow*flow*HD, and Slow*flow*3D
- Advanced VCI with OmniView
- HD*live** Technology
- Radiant, UltraHD and Augment
- Uterine Trace
- Advanced STIC & *e*STIC
- Advanced Fetal Echo
- *fetal*HQ
- SonoFHR
- AI based image guidance SonoLyst
- AI based functionality with *fetal*HS, SonoCNS, SonoPelvicFloor
- Automation Technology with SonoBiometry, SonoNT, SonoIT, SonoAVC*follicle*
- XDclear™ Probes
- Volume Matrix Technology
- High Frequency Transvaginal Imaging
- Electronic 4D Technology
- 3D Printing Capabilities

General Specifications

Dimensions / Weight / Audible noise emission	
Height (minimum)	113 cm (44.3 in)
Height (maximum)	177 cm (68.3 in)
Adjustable	with electrical motor
Width	58 cm (23.0 in)
Depth	96 cm (37.9 in)
Weight (no Peripherals)	100 kg (220 lbs.)
Maximal audible noise emission	≤65dBA
Typical audible noise emission (in a noise-reduced setting)	≤35dBA (measured at normal user-location in standard working mode)

Power supply	
Voltage	100 – 240V~
Frequency	50/60 Hz (+/-1Hz)
Power	Max. 600VA including all options, typical power consumption ~300VA without peripherals
Thermal Output	max. 2047 BTU/h typ. 1023 BTU/h

Console design	
4 Active Universal Pinless Imaging Probe Ports	
Central 4-wheel brake mechanism with directional lock on rear wheels, front and rear operation	
Wheels	15 cm diameter
Non-glaring probe port illumination	
Ambient lightning with user adjustable coloring	
Integrated DVD+R(W)/CD-R(W) drive	
On-board storage for Peripherals	

Operating System	
Operating System: Windows** 10 Iot Enterprise 64 bit	
Integrated HDD	2 TB (optional 1TB SSD)
Integrated SSD	64 GB

User Interface

Operating panel
Floating Keyboard: • Rotation: adjustable +/- 38° from center • Height adjustable + 300 mm (11.8 in) • Front extension: up to 200 mm (7.9 in)
5 integrated probe holders with individual cable outlet plus 1 holder for transvaginal probe
Gel warmer
User adjustable light scheme
4 programmable buttons for print/save/send
4 user configurable buttons
Integrated microphone

Touch screen	
15.6” high resolution color LCD screen	
Resolution	Full HD 1920 x 1080 pixel
Aspect ratio	16:9
Multi touch interactive dynamic software menu	
Brightness adjustable	
Capable to display 2D/3D/4D Ultrasound Images in real time	

Monitor	
23.8” high resolution HDU Display with HDMI interface	
Resolution	Full HD 1920 x 1080 pixel
Aspect ratio	16:9
Max. display brightness	340 cd/m²
Contrast ratio	1000 : 1
Response time	15 ms
Tilt/Rotate Adjustable Monitor	
Tilt angle: min. +25°/-75°	
Horizontal rotate angle: +/- 90°	
Brightness settings: Extra Dark, Dark, Semi Dark, Light, Extra Light Room	
Color temperature setting: warm and cold	

System Overview

Exam types
Abdominal
Obstetrical and Fetal Echo
Gynecological
Small Parts and Breast
Vascular
Pediatrics
Transrectal
Cardiology
Cephalic
Musculoskeletal (MSK)

Standard operating modes	
B-Mode (2D)	
Color Doppler mode (C)	
Power Doppler Mode (PD), including HD-Flow*	
M-Mode (M), including anatomic M-Mode (AMM)	
Pulsed Wave Doppler (PW) with automatic HPRF, including duplex and triplex capabilities	
Tissue Doppler Mode (TD) and PW-Tissue Doppler Mode	
Slow*flow*HD, including Slow*flow*3D	
B-Flow* (BF)	
Combination modes: M/C, M/HD-Flow, M/TD, PW/C, PW/HD-Flow, PW/PD, PW/TD	
Extended View (XTD View)	
Volume Mode (3D/4D): • 3D Static • 4D Real Time • VCI-A	
Static 3D Mode: • B Mode only • B + Power Doppler Mode • B + CFM Doppler Mode • B + HD-Flow Mode	• B + CRI • B + CRI + CFM • B + CRI + PD • B + CRI + HD-Flow • B + B-Flow

User Management and Logging Functionality
Multiple Users with individual log on credentials
Different and adjustable access levels
LDAP Interface
Enhanced Audit Trail and Usage Log

Privacy and Security Functionality
Hard disc AES Encryption with 256-bit length
Whitelisting
Encrypted DICOM® Communication Capability (TLS)
Encryption and Data Anonymization Export Capability
All ports, services and shared resources that are not required for the intended use are disabled
Operating System Access disabled
Deactivation of USB ports possible

Transducer types
Sector Phased Array
Convex Array
Microconvex Array
Linear Array
Active Matrix Phased Array (1.25D, 1.5D)
Active Matrix Linear Array (1.25D, 1.5D)
Volume probes 4D: • Convex Array • Microconvex Array • Linear Array • Active Matrix Convex Array (1.5, 2D)

Scanning methods
2D Electronic Sector/Convex/Linear
3D/4D Mechanic/Electronic Volume Sweep

System standard features
Automatic Optimization (B-Mode, PW Doppler)
Auto TGC
Coded Harmonic Imaging with Pulse Inversion Technology, operating on multiple frequencies
AutoScale (PW Doppler and Color Doppler PRF)
Anatomical M-Mode (AMM) with up to 2 cursors
Augment scanning mode
UltraHD scanning mode
Shadow Reduction
Radiant & Radiant*flow*
SRI
CrossXBeam[CRI]* (Compound Resolution Imaging)
Advanced 4D (4D Realtime, 4D Biospy, VCI-A, 4D-AMM)
HD*live* Studio+ (including HD*live* Studio with up to 3 light sources, Silhouette controls and Perspective Rendering, HD*live* Silhouette)
HD*live* Flow, HD*live* Flow Silhouette
SonoRender*live*
Scan Assistant: • Includes measurements, annotations and fetal anatomy and gynecology worksheet entries • Performs predefined mode changes, preset selection and screen layout changes • Supports display of user selected reference images
Standardize image sequence upon DICOM® transfer
HD Zoom & Pan Zoom
Steering
Virtual Convex (Trapezoid Image, also with CrossXBeam [CRI])
Beta-View
Histogram Analysis with up to 3 user adjustable ROIs with comparative analysis on complex curves
Inversion Mode
Measurement, Calculations and Worksheets/Report for: • OB • GYN • Vascular • Cardio • Abdominal • Small Parts • Transrectal • Pediatrics • Cephalic • Musculoskeletal (MSK)
Multigestational Calculations
SonoBiometry (HC, BPD, AC, FL, HL, SonoNT & SonoIT, Cerebellum, CM, lat. Ventricle, Cardiac axis)
SonoCNS
SonoFHR
Real-time automatic Doppler calculations
VOCAL II
DICOM® 3.0 Connectivity
Integrated uplink for Cloud-based data storage (Tricefy™) (not available in all countries)
Integrated Software DVR • Digital recording • One drive for data export and recording • DVD Formats: DVD+R, -R, +RW, -RW for recording, DVD and CD support for data export • USB support: FAT32 compatibility
GYN IOTA LR2, Simple Rules and ADNEX Model (not available in all countries)
GYN IETA Protocol & Report (not available in all countries)
GYN IDEA Protocol & Scan Assistant Guideline
Patient information database
Image Archive on hard drive
3D/4D data compression (lossy/lossless)
Data export in 3D printable format

System options (some options may not be available in all countries)
E4D advanced features (for eM6C G3 activation only) • 2D Modes: Bi-Plane, Bi-Plane CRI, Bi-Plane Steering • Real Time 4D Mode: B + CFM/PD/HD-Flow Modes • VCI-A + CFM/PD/HD-Flow Modes • *e*STIC with color modes
Advanced STIC: • STIC • STIC M-Mode • STIC-Flow • SonoVCAD*heart*
Advanced VCI (Volume Contrast Imaging), including VCI-C, OmniView and Uterine Trace
V-SRI
SonoAVC, including SonoAVC*follicle*, *antral* and *general*
SonoVCAD*labor*

Coded Contrast Imaging
Compression Elastography
Shear Wave Elastography (not available in all countries
*fetal*HQ 2 (including speckle tracking capabilities)
*fetal*HQ (including speckle tracking capabilities, available in countries, where *fetal*HQ2 is not available)
*fetal*HS
SonoLyst
SonoPelvicFloor
CW Doppler
Advanced Security Features
Premium Security Features (meeting USA DoD requirements)
Voluson Remote Update
eDelivery
AVURI Device Management

Peripheral options
Gel warmer (integrated in probe holders)
B&W printer, medical grade (integrated in console)
Color printer, medical grade (not integrated, with wireless connection)
Report color printer with network printing capabilities & connection kits for printing reports and images (not integrated)
Alphanumeric Keyboard (not integrated)
ECG Digital Module
Foot Switch, with programmable functionality
Barcode Scanner
NFC reader (for user log-on with RFID Cards, not available in all countries)
Respond (automatic probe activation when a probe is removed from the holder)
UPS – 115V or 220/230V AC Uninterruptible Power Supply to prevent data/image loss in case of power failure assuring autonomy up to 15 minutes in scanning (may vary depending on battery age)
Power Filter
External Patient Monitor Set
Wireless HDMI connection
Isolation Transformer
WLAN Adapter
Digital Expert

Displayed information		
Patient name: First/Middle/Last Name, max. 62 characters		
Patient ID: max 32 characters		
Secondary patient ID (Citizen Service Number)		
Accession #: max 16 characters		
Hospital Name: max 30 Characters		
Sonographer		
Gestational age (OB) or LMP (GYN)		
Birth date		
Date: • YYYY/MM/DD	• MM/DD/YYYY	• DD/MM/YYYY
Time display selectable: 12/24 hours		
Probe name		

Displayed Acoustic Output: • TIS: Thermal Index Soft Tissue • TIC: Thermal Index Cranial • TIB: Thermal Index Bone • MI: Mechanical Index
Frame Rate / Depth
Angle / Zoom
Preset / Application

• Receiver Frequency • Gain • Dynamic Contrast/Gray Map	• Persistence/Edge Enhance • Radiant • SRI, CRI
M Mode/AMM Mode: • M-Gain • Dynamic contrast • Edge Enhance	 • Reject • M-Cursor, AMM-Cursor • Time Scale
PW Doppler Mode: • PW-Gain • Angle • Sample Volume Depth and Size	• PRF including HPRF • Wall Motion Filter • Frequency • Velocity or Frequency Scale • Time Scale
Color Flow Imaging modes • Color Gain • Frequency • Quality • Wall Motion Filter • PRF	• Color Map • Color Scale: kHz, cm/s, m/s • Color Velocity Range • Color Balance Marker
3D/4D Mode: • 3D/4D Sub Program • Threshold • Quality • Volume Box Angle • Mix • Acquisition Mode • Compression • VCI: slice thickness	 • TUI: slice distance • TUI: slice position in overview image • STIC acquisition time • Calculated heart rate for STIC and *e*STIC

Gray Scale bar
Color Scale bar (mode dependent), showing WMF, Balance
Depth Scale
Focal Zone Marker
Probe Orientation Marker
Cine Frame Number
Recorder, spooler, external monitor, email, Trice, ethernet connection status
Body Marks: 124 types organized in 10 anatomical groups
Measurement results
ECG Line
Trackball function (Trackball and Trackball buttons)
P-Button and C-Button configuration
Zoom overview image (zoom box position)
Clipboard in adjustable layout
Scan Assistant/Measurement result window

System Parameters

System setup
User Programmable Presets

Display Languages: English, French, German, Spanish, Portuguese, Italian, Danish, Dutch, Finnish, Norwegian, Swedish, Russian, Japanese, Simplified Chinese

Software Keyboard Languages: English, French, German, Spanish, Italian, Danish, Finnish, Norwegian, Swedish, Russian, South Slavic Latin

eIfU (electronic Instructions for Use) Languages:
Bulgarian, Croatian, Czech, Chinese Simplified, Danish, Dutch, English, Estonian, Finnish, French, German, Greek, Hungarian, Indonesian, Italian, Japanese, Kazakh, Korean, Latvian, Lithuanian, Norwegian, Polish, Portuguese, Romanian, Russian, Serbian, Slovakian, Slovenian, Spanish, Swedish, Turkish, Ukrainian, Vietnamese

Free programmable Scan assistant lists including Add, Delete, Edit and Reorder of checklist items

Up to 1750 Programmable Annotations organized in 10 anatomical groups, including a library function and auto-complete

Measure setup

M&A Setup including Add, Delete, Edit and Reorder of measure items

Application Setup including several parameters of Measurement, Doppler Trace and Calculation presets

Global Setup including several parameters of Measurement, Cursor and Result window presets

Post assign measurements

Auto Sequence measurements

Image processing and presentation

Digital Beamformer

1.800.989.313 system processing channel technology

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

Maximum Depth of Field: 0 – 50 cm (probe dependent)

Depth Steps: up to 29 (probe dependent)

Confocal Imaging: available on all probes

Transmission Focus: 1-5 Focus Points selectable (probe and application dependent)

Focal Zone position, up to 10 positions selectable

Continuous Dynamic Receive Focus/ Continuous Dynamic Receive Aperture for all probes

256 gray levels

16.8 million Colors 24 bit

Up to 418 dB Dynamic Range

Image reverse: Right/Left

Rotation: 0°, 180°

Cine features

- Prospective or Retrospective Cine Mode
- Single/Dual/Quad image Cine Display
- Cine Gauge and CINE image number display
- Cine Review Loop
- Cine Sequence (by Setting Start and End)
- Measurements /Calculations & Annotations on CINE

Length:

- 2D: 1024MB: up to 10 min (depending on B-image size and FPS); typical: about 3 min/4000 images (with curved array: 15cm depth, angle 81°, 22 FPS)
- PW/M-Mode: 32MB: up to 1 min motion time (depending on sweep and depth)

Image/volume storage (archive)

Standard and fully anonymized archive available

Images stored as:

- Raw Data file (proprietary format)
- DICOM file (Single-or Multi-Frame)

Volume file stored as:

- Raw Data file (proprietary format)
- DICOM file

Size: typically: 0.8 – 5MB (depending on probe and adjusted volume size)

Compression:

- 2D: JPEG, lossless, high, mid low
- 3D/4D: Lossy and lossless compression available. Typical compression rates are 50% with lossless compression, 15% with lossy compression but maximum quality and 5% with lossy compression and reduced quality (approximate values).

Review of current exam and archived data sets (Single Images and Cine Clips). View format: Raw data, DICOM data. Display Formats: 1x1, 2x2, 3x3

Reload of current/ archived data sets: 2D Raw Data (incl. Color Doppler, Spectral Doppler and M-Mode). 3D Raw Data (single Volume incl. Calc. Cines). 4D Raw Data (Volume Cine).

Export as:

- Bitmap files: BMP, TIFF, JPE, PNG
- Raw files: RAW (2D), VOL (Volume data), 4DV
- (RAW, VOL incl. Patient data – password protected)
- Video File Format: AVI, MP4
- DICOM Files: DCM, DICOM Files with DICOMDIR
- 3D Raw Data: export Cartesian format possible
- Surface formats: STL, OBJ, PLY, 3MF, XYZ (with projected and full 3D export capabilities)

AVI Codec: MS Video 1, FullFrames

Export to: DVD+R(W), CD-R(W), Network, USB devices, email, Printer, DICOM®, Tricefy™

Export Anonymous function: available for following image types: AVI, BMP, TIFF, JPEG, MP4, 4DV

Backup function to: DVD+R(W)/CD-R(W), Network, USB devices

Repro function: Settings recall (e.g. Geometry, Gain, Color map, etc.) from a stored or reloaded picture

Exam history: Direct access to images from previous exams; direct access to Measure Reports images from previous exams; Image compare window on screen to compare images from previous exams with current exam image

Hard Drive Data Storage space: approx. 1900 GB

Connectivity

DICOM® support:

- Verify
- Print
- Store
- Modality Worklist
- Structured Reporting
- Storage Commitment
- MPPS (Modality performed procedure step)
- Media Exchange
- Off network / mobile storage queue
- Query/Retrieve

- TLS

Tricefy™ features:
- Store
- Patient Share
- .pdf Report
- Query/Retrieve

Scanning Parameters

B Mode		
Gain range	+15 (100%) to -25 dB (0%)	
TGC	8 sliders	
Nearfield/Farfield	Adjusting upper/lower TGC sliders	
Mode	Harmonic/Fundamental	
Harmonic Frequencies	Low/Mid/High	
Fundamental Frequencies	Penet/Norm/Resol	
Acoustic Power	1-100%	
Angle	20° to max. angle in 5° steps	
Max Angle	Probe dependent	
Shadow Reduction	On/off available on all probes except 6S-D and L8-18i-D	
Dynamic Contrast	1 – 12 in 0.5 step increments	
SRI	5 steps (1-5), available on all probes	
CRI	8 steps (1-8), available on all (curved and linear) probes except: M5Sc-D and 6S-D	
Radiant	Off/in/mid/max	
UltraHD	On/off, available on all probes except 6S-D, M5Sc-D and L8-18i-D	
Augment	On/off, available on all probes except 6S-D and L8-18i-D	
Gray maps	21 (18 basic maps and 3 User-defined maps)	
Tint maps	11 (10 colors, 1 greyscale)	
Line filter	off, low (12.5/75/12.5%), high (25/50/25%)	
Persistence filter	8 steps from 1 to 8	
CRI filter	Off/low/mid/high	
Line Density	Low/norm/high	
Reject	51 steps from 0 to 255	
Enhance	6 steps 0, 1, 2, 3, 4, 5	
Display Modes	B, XTD, Fullscreen	
Max. B-Mode Frame Rate	> 3000 frames/sec	
Gray scale values	8 bit	
Frequency Range	1 to 18 MHz depending on the probe, adjustable in 3 fundamental steps (penetration, normal, resolution) and up to 5 Harmonic steps (Augment, low, mid, high, UltraHD)	
Screen Formats: • 2D Imaging: Single (B), Dual (B+B), Quad (B+B+B+B) • XTD View: Single (XTD), Dual (B+XTD)		
Write Zoom up to 8x Magnification		
Read Zoom: 0.8x – 3.4x Zoom (with HD-Zoom functionality up to 22x Zoom)		
Virtual Convex: * also with CrossXBeam[CRI]	• RSP6-16-D* • 9L-D* • 6S-D	• 11L-D* • M5Sc-D • ML6-15-D*
Wide Sector: • RIC6-12-D • RM7C-D	• RIC5-9-D • RAB6-D • IC5-9-D	• C1-6-D • *e*M6C G3 • C2-9-D

M-Mode	
Working Modes	M (conventional M- Mode) AMM (Anatomical M-Mode)
Acoustic Power	1-100%
Gain	+15 (100%) to -25 dB (0%)
Radiant	Off/in/mid/max
Dynamic Contrast	1 – 12 in 0.5 step increments
Gray maps	21 (18 basic maps and 3 User-defined maps)
Tint maps	11 (10 colors, 1 greyscale)
Reject	51 steps from 0 to 255
Enhance	6 steps 0, 1, 2, 3, 4, 5
Sweep speed	1 - 6
B/M-Mode Quality	On/off
Review (memory times)	>60 s (32MB)
Format	40/60, 50/50, 60/40
AMM Rotate	-90 to 90
Display Modes: • M: 2D+M, 2D+M/CFM, 2D+M/HD-Flow, 2D+M/Slow*flow*HD, 2D+M/TD • AMM: 2D+AMM, 2D/CFM+AMM/CFM, 2D/HD-Flow +AMM/HD-Flow, 2D/Slow*flow*HD +AMM/Slow*flow*HD, 2D/TD+AMM/TD	
Screen Formats: (window arrangement) • 2D+M and 2D+AMM: up/down (horizontal): three different sub formats 30/70, 50/50, 70/30% left/right (vertical): 50/50% • 2D+AMM+AMM: left/right-up/down: 50/25/25%	

M-Color Flow Mode		
Probes: • IC5-9-D • RAB6-D • C1-6-D	• RIC5-9-D • RM7C-D • M5Sc-D	• RIC6-12-D • eM6C G3 • C2-9-D
Acoustic MCFM Power	1-100%	
MCFM Color Maps	8 maps	
CFM Gain	+/-15 dB range, 0.1 dB steps	
CFM Velocity Scale Range	PRF: 150Hz to 20.5kHz	
Wall Motion Filter	8 – 3000 Hz	
Ensemble (color shots per line)	8-16, step size 1	
Gentle color filter		
Smooth:	Rise: 12 steps Fall: 12 steps	
CFM Spectrum Inversion		
CFM Baseline Shift	17 steps	
Pre-settable and independently adjustable B-, M and MCFM Gain		
CFM Threshold	1 – 255 steps	
Balance	25 – 225, step size 5	
Artifact suppression	On/Off	
Color Display Mode: • V (Velocity) • V-T (Velocity + Turbulence)	• V-P (Velocity + Power) • T (Turbulence) • P-T (Power + Turbulence)	
Real –time Triplex Mode	B + M + MCFM in any depth	

Color Doppler Mode	
Screen Formats	2D+CFM: Single, Dual, Quad
Display Modes: • Simultaneous dual mode: 2D/2D+CFM • Triplex mode: 2D+CFM/PW, 2D/M+MCFM • Volume Mode: 3D+CFM, STIC+CFM, *e*STIC+CFM	
Color coding: • Steps: 65536 color steps • Display modes: V-T (velocity + turbulence), V (velocity), V-P (velocity + power), T (turbulence), P-T (power + turbulence)	
Gain	+15 dB to -15 dB, 0.2 dB steps
Acoustic output	1 – 100%
PRF	CFM: 150 Hz to 20.5 kHz MCFM: 150 Hz to 20.5 kHz
Quality	Low/norm/high
Radiant*flow*	Off/min/mid/max
Flow Profiles	6 presets
Depth range	Axial: 0 to B scan range Lateral: 0 to B scan range
Baseline shift	17 steps (independent from spectral Doppler)
Inversion of color direction	Yes
Wall Motion Filter	7 steps (low1, low2, mid1, mid2, high1, high2, max)
Smoothing Filter	12 steps rising time, 12 steps falling time
Threshold	1 - 255
Line Density (color line density)	10 steps
Ensemble (color shots per line)	CFM: 7 to 31; MCFM: 8 to 16
Flow Resolution	4 steps (low, mid1, mid2, high)
Balance	From 25 to 225
Center frequency	Low/mid/high
Line filter	Off/1-7
Color Maps	8 Maps
Frequency range	1 to 18 MHz depending on the probe, adjustable in 3 steps (low, mid, high)
Max. meas. velocity	4.23 m/sec
Min. meas. velocity	0.3 cm/sec
Scale	kHz, cm/s, m/s
Automatic moving tissue suppression	Yes
Max. Color Doppler Frame Rate	> 450 frames/sec

Power Doppler Mode (PD)	
Screen Formats	2D+PD: Single, Dual, Quad
Display Modes: • Simultaneous dual mode: 2D/2D+PD • Triplex mode: 2D+PD/PW • Volume Mode: 3D+PD	
PD coding	256 color steps
PD window size	Lateral: maximum to minimum B mode scan angle Axial: B-scan range
Display mode	P (power)
Wall motion Filter	7 steps (low1, low2, mid1, mid2, high1, high2, max)
Smoothing Filter	Rising edge: 12 steps Falling edge: 12 steps
Gain Control	+15 dB to -15 dB, 0.2 dB steps

PD Ensemble	7 to 31
PD Line Density	10 steps
Pulse repetition frequency	150 Hz to 20.5 kHz
PD Map	8 different color codes for each probe
Frequency range	1 to 18 MHz depending on the probe, adjustable in 3 steps (low, mid, high)
Flow Resolution	4 steps (low, mid1, mid2, high)
Balance	From 25 to 225 in 41 steps
Artifact suppression	Yes

HD-Flow	
Screen Formats	2D+HDF: Single, Dual, Quad
Display Modes: • Simultaneous dual mode: 2D/2D+HDF • Triplex mode: 2D+HDF/PW; 2D/M+MHDF • Volume mode: 3D+HDF	
HD-Flow Coding Steps	256 color steps
HD-Flow window size lateral	Maximal to minimal B mode scan angle; axial: B-scan range
Wall Motion Filter	8 steps (low1, low2, mid1, mid2, high1, high2, max1, max2)
Smoothing Filter	12 steps rising edge 12 steps falling edge
Gain Control	+15 dB to -15 dB, 0.2 dB steps
HD-Flow Ensemble	7 to 31
HD-Flow Line Density	10 steps
Pulse repetition frequency	150 Hz to 20.5 kHz
HD-Flow Map	8 different color codes for each probe
Frequency Range	1 to 18 MHz depending on the probe adjustable in three steps (low, mid, high)
Flow Resolution	4 steps (low, mid1, mid2, high)
Balance	From 25 to 225
Line Filter	8 steps (off, 1 to 7)
Artifact suppression	Yes
Radiant*flow* level min/mid/max, available on all probes	

Slow*flow*HD	
Available on all probes, except M5Sc-D	
Screen Formats	Single, Dual, Quad, 2D+ Slow*flow*HD
Display Modes: • Simultaneous dual mode: 2D/2D+ Slow*flow*HD Triplex mode: 2D+ Slow*flow*HD /PW (triplex update); 2D+ Slow*flow*HD /M, 2D+ Slow*flow*HD /AMM	
Slow*flow*HD Coding Steps	256 color steps
Slow*flow*HD window size lateral	Maximal to minimal B mode scan angle; axial: B-scan range
Wall Motion Filter	8 steps (low1, low2, mid1, mid2, high1, high2, max1, max2)
Smoothing Filter	12 steps
Gain Control	+15 dB to -15 dB, 0.2 dB steps
Line Density	10 steps
Pulse repetition frequency	auto adjusting
Map	8 different color codes for each probe
Frequency Range	1 to 18 MHz depending on the probe adjustable in three steps (low, mid, high)
Flow Resolution	4 steps (low, mid1, mid2, high)
Balance	From 25 to 225
Line Filter	8 steps (off, 1 to 7)
Artifact suppression	4 steps (off, low, mid, high)

Tissue Doppler Mode (TD)		
Probes: • RIC5-9-D • RIC6-12-D	• eM6C G3 • RAB6-D • RM7C	• C2-9-D • C1-6-D • M5Sc-D
Screen Formats	2D+TD: Single, Dual, Quad	
Display Modes	Simultaneous dual mode: 2D/2D+TD; Triplex mode: 2D+TD/PW, 2D/M+MTD;	
TD coding steps	65536 color steps	
Depth range	Axial: 0 to B-scan range Lateral: 0 to B-scan-range	
Baseline shift	17 steps	
Inversion of color direction	Yes	
Smoothing Filter	12 steps rising time, 12 steps falling time	
Gain Control	+15 dB to -15 dB, 0.2 dB steps	
Line Density (color line density)	10 steps	
Ensemble (Color shots per line)	3 to 31	
Flow Resolution	4 steps (low, mid1, mid2, high)	
Pulse repetition frequency	150 Hz to 20.5 kHz	
TD Map	4 different color codes for each probe	
Frequency range	1 to 18 MHz depending on the probe, adjustable in 3 steps (low, mid, high)	
Balance	From 25 to 225	
Max. meas. velocity	4.23 m/sec	
Min. meas. velocity	0.3 cm/sec	
Display Mode	V (velocity)	
Scale	kHz, cm/s, m/s	

PW Doppler	
• Gain	+15 dB to -25 dB, 0.2 dB steps
• PRF	Probe dependent
• Radiant	Off/min/mid/max
• Flow Profiles	6 presets
• Sample volume position	Axial: 0 to B scan range Lateral: 0 to B scan range
• Baseline shift	17 steps, -8 to 8
• Inversion of flow direction	Yes
• Wall Motion Filter	8 steps (probe dependent)
• PW Angle	-85° to 85° in 1° increments
• Gray maps	21 (18 basic maps and 3 User-defined maps)

• Tint maps	11 (10 colors, 1 greyscale)
• Center frequency	Low/mid/high
• Sweep speed	1-6
• Allow HPRF	On/off
• Dynamic contrast	10 – 40 in2 step increments
• Frequency range	1 to 18 MHz depending on the probe, adjustable in 3 steps (low, mid, high)
• Units	kHz, cm/s, m/s

PW-Tissue Doppler Mode (PW-TD)		
Probes: • RIC5-9-D • RIC6-12-D • RM7C	• eM6C G3 • RAB6-D	• C2-9-D • C1-6-D • M5Sc-D
Operating Modes	2D+TD/PW (Tissue Doppler + Pulsed Wave Doppler, Single Gate)	
Transmit Frequencies	1.75..18 MHz	
Pulse Repetition Frequency (PRF)	0.9..7.0 kHz	
Sample Volume (Doppler Gate)	Length: 0.7,1,2,3,4,5,6, 7,8,9,10,15 mm Position: 5 mm to B-scan end, Angle correction: -85°…0°…+85°	
Power control range	1-100	
Gain range	B-Mode: +15 to -25 dB TD: +15 to -15 dB PW: +15 to -25 dB	
WMF (Wall Motion Filter)	PW: 30…500 Hz,	
Baseline shift	± PRF/2, ± 8 steps	
Spectrum Analyzer	max. 128 frequencies, 256 amplitude levels	
PW sweep speeds	Duplex/Triplex (26.44 / 13.22 / 8.81 / 6.61 / 4.40 / 2.94 cm/s)	
Review (memory time)	>60 s (32MB)	
Measurable velocities	1cm/s – 1.3m/s (a = 0°, 2.0MHz, max. zero shift) 1cm/s – 2.5m/s (a = 60°, 2.0MHz, max. zero shift)	
Signal processing	Dynamic range: 15 steps (10 to 40) Gray maps: 18 basic curves and 3 User-defined (pre, post) Tint maps: 11	
Scale display	Vert.: kHz, cm/s, m/s (selectable) Hor.: 1s marker (big), ½ s marker (small)	
Screen Formats	2D+TD/PW: horizontal: three different sub formats 30/70, 50/50, 70/30% vertical: 50/50%	
Display Formats	2D+TD/PW (duplex/triplex update/simultaneous);	
Audio-Modes	Stereo (both directions separately in both channels)	
Audio Volume	Adjustable	

Volume Scan Module

Vol. scan size: max. 64 MB for gray volumes, max. 90 MB for color volumes; The required memory space depends on scan parameters (VOL-box size and quality (low, mid1, mid2, high1, high2, max). Typical: 0.8-5 MB

Lines/2D-image: max. 1024 (typ. 80 to 350)

2D-images/volume: Up to 4096 (Acquisition mode dependent)

Max. Volumes/sec.: >1200 (typ. 10-20), depending on probe and scanning parameters

4D Volume Cine: up to 400 volumes, up to 1024 MB

Display of sectional plane images: synchronous with control, arbitrary movement in volume, monitored position in volume

Rotation: 360°, 1° or 3° increments (X-, Y- and Z-axis)

Magnification. Adjustable form 0.3 to a factor of 4.00

Acquisition Modes:

- 3D Static:
  - 3D (2D incl. CRI)
  - 3D/PD (incl. CRI)
  - 3D/CFM (incl. CRI)
  - 3D B-Flow
  - 3D/HD-Flow incl. CRI
- 4D:
  - 4D Real Time
  - VCI-A
  - VCI-OmniView
  - STIC
  - *e*STIC

- STIC:
  - Fetal Cardio
  - STIC Angio: B/Power Doppler (incl. CRI)
  - STIC CFM: B/Color Doppler (incl. CRI)
  - STIC HD-Flow: B/HD-Flow (incl. CRI)
  - STIC B-Flow
  - STIC TD

- *e*STIC (eM6C G3 probe only):
  - STIC B (Fetal Cardio)
  - STIC CFM (B/Color Doppler)
  - STIC PD (B/Power Doppler)
  - STIC B/HD-Flow
  - STIC B/TD (B/Tissue Doppler)

Visualization Modes:

- Render
  - 3D/4D Rendering (diverse surface and intensity projection modes)
  - SonoRender*live*
- Sectional Planes
  - Multiplanar
  - OmniView, actual and projected view
  - Niche
  - SonoVCAD*labor*
- TUI (Tomographic Ultrasound Imaging) (overview image+parallel slices)
  - TUI Standard
  - SonoVCAD*heart*

Visualization Modes:

- Volume Analysis
  - VOCAL: semi-auto/ manual segmentation tool (segmentation using touch screen), (3D Static only) + Threshold Volume: measure volume below and above a threshold
  - SonoAVC*follicle* (Sono Automated Volume Count)
  - SonoAVC*antral*
  - SonoAVC*general*
- VCI (Volume Contrast Imaging)
- HD*live* Studio: 3 free moveable light sources and types

Render Modes:

- HD*live* Silhouette
- HD*live* Flow
- HD*live* Studio+
- HD*live* Flow Silhouette

• Surface Enhanced • Color • Mix Mode of two render modes • Surface Texture • Surface Smooth		• Transparency modes: max-min- and X-ray • Gradient Light • Inversion • Glass Body • Light
Display graphics: • Rotation axis, center point • ROI box, 3D Frame • Temporary display of onscreen controls (rotation, translation)		
Gray maps: Slices: 21 (18 basic curves and 3 User-defined (pre, post) 3D Image: one general map adjustable with bright (-50 to +50) & contrast (-50 to +50))		
Tint maps: Slices: 10; 3D image: 10		
Depth render maps: 3		
V-SRI: • RIC5-9-D	• RIC6-12-D • RAB6-D	• RM7C • eM6C G3

BF (B-Flow)	
B-Flow for all probes except: 6S-D, M5Sc-D and L8-18i-D	
Screen Formats	Single (BF), Dual (BF+BF), Quad (BF+BF+BF+BF)
Display Modes	BF, Update: BF/PW
Acc. Power range	1 – 100%
Scan angle	Taken from 2D
Gain range	+15 to -25 dB
Gray scale values	8 bit
SRI	Taken from 2D
Persistence filter	8 steps (pre)
S./PRI	1.00, 1.50, 2.00, 3.00, 4.00, 5.00
Quality	3 steps (pre) low, norm, high
Enhance	6 steps (pre) 0, 1, 2, 3, 4, 5
Gray maps	21 (18 basic maps and 3 User-defined maps)
Tint maps	10
Dynamic	12 different dynamic curves C1 – C12
Accumulation	Off, 0.20, 0.35, 0.50, 0.75, 1.00, 1.50, Infinite
Background	0, 1, 2

Bi-Plane Mode (available on eM6C G3 only)	
Acc. Power range	1 – 100
Scan angle	B-Mode angle: 85° Bi-Plane angle: 90°
Gain range	+15 to -25 dB
Gray scale values	8 bit
SRI	5 steps (1-5)
CRI	8 steps (1-8)
CE	On/Off
FFC	On/Off
Persistence filter	8 steps (pre)
Line filter:	3 steps (pre) off, low (12,5/75/12,5%), high (25/50/25%)
Line Density:	3 steps (pre) low, norm, high
Reject:	51 steps (pre) from 0 to 255
Enhance:	6 steps 0, 1, 2, 3, 4, 5
Gray maps:	21 (18 basic & 3 User-defined maps)
Tint maps:	10
Dynamic:	12 different dynamic curves C1–C12
Steering:	Max 20° (+/- 10°)

Measurements

Generic measurements	
Distance: • Distance (Point to Point) • Distance (Line to Line) • 2D Trace (Trace Length)	• 2D Trace (Point Length) • Stenosis (% Dist.) • Ratio D1/D2
Area/Circumference: • Ellipse • Trace (Line) • Trace (Point)	• Stenosis (%Area) • Area (2 Dist.) • Ratio A1/A2
Volume: following Methods: • 1 Distance • 1 Ellipse • 1 Dist. + Ellipse	• 3 Distance • Multiplane-Planimetric Volume (3D only)
Angle: • Angle (3 Point)	• Angle (2 Line)
M-Mode: • Distance (Point to Point) • Time • Slope • Vessel Diam. • Ratio D1/D2	• HR • Stenosis (% Dist.) • IMT • Stenosis Diam.
PW Doppler Mode: • Auto & Manual Trace: - PS (Peak Systole) - ED (End Diastole) - MD (Mid. Diastole) - S/D (Ratio) - TAmax - HR - PI (Pulsatility Index) - RI (Resistance Index) • Vol. Flow • PGmax, PGmean • TAmax (Time avg. max. Velocity) • TAmean (Time avg. mean Velocity) • VTI (Velocity Time Integral) Heart Rate	
Vessel: • R/L Vessel area • R/L Vessel diam. • R/L IMT	• R/L Stenosis area • R/L Stenosis diam. • R/L Flow diam.
Single Measurements: • Velocity • Time	• PS/ED • RI • PI • PS • Acceleration • HR • ED

Abdomen calculations	
Liver	Gallbladder
Pancreas	Spleen
Kidney (right/left)	Renal Artery (right/left)
Aorta (Proximal, Mid, Distal)	Portal Vein
Vessel	Bladder Volume
Summary Reports	

Small part calculations
Thyroid (right/left)
Testicle (right/left)
Dorsal Penile Artery (right/left)
Vessel
Summary Reports

Small part breast calculations
Lesion 1-5 (right/left)
Summary Reports

Obstetrics calculations
Fetal Biometry
Early Gestation
Fetal Long Bones
Fetal Cranium
NT Method: SonoNT/Manual
AFI
Uterus
Ovary right/left
Umbilical Vein
Placenta Volume
Ductus venosus: S, D, a, PI, PLI, PVIV
Doppler measurements: Ductus Art., Ductus Ven., Ao, Carotid, MCA, Celiac Artery, Superior Mesenteric Artery, Umbilical Art., Umbilical Vein, FHR, Uterine Art.
Gestational Age Calculation
Gestational Growth Calculation
Fractional Limb Volume
Fetal Weight (FW) Estimation
Fetal Trend Graphs
Multi-Gestational Calculation & Fetal Compare
Calculation and Ratios
Fetal Qualitative Description (Anatomical assessment)
Fetal Environmental Description (Biophysical profile)
Summary Reports

Obstetrics Fetal Echo
Chambers
Thorax
Aorta/LVOT
Pulmonary/RVOT
Venous
*fetal*HQ
FHR
Tricuspid valve
Mitral Valve
Aortic
Pulmonary
LPA
RPA
Ductus Art.
Cardiac Output
LT TEI
RT TEI
Ductus Ven.
Umbilical Vein
Pulmonary Veins

Summary Reports

Obstetrics Z-scores

- Long Axis
- Aortic Arch
- Short Axis
- Thorax
- Obl. Short axis
- 4 Chambers
- Summary Reports

***fetal*HQ & *fetal*HQ2**

- Global Heart Size: Length, Width, Area, Axis
- Global Heart Shape: Sphericity Index
- Ventricular Size (for RV & LV): Area, BAL, Transverse Diameter (24 segment)
- Ventricular Shape (for RV & LV): Sphericity Index (24 segment)
- Ventricular Contractility: Area Fractional Shortening, Global Strain, Transverse Diameter Shortening (24 segment), BAL Shortening, Annular Plane Systolic Excursion, Lateral and Septal Wall Strain

Cardiology calculations

2D Mode:
- LV Simpson (Single & Bi-Plane)
- Volume (Area Length)
- LV-Mass (Epi & Endo Area, LV Length)
- LV (RVD, IVS, LVD, LVPW)
- LVOT Diameter
- RVOT Diameter
- MV (Dist A, Dist B, Area)
- TV (Diameter)
- AV/LA (Aortic Valve/Left Atrium)
- PV (Diameter)

M-Mode:
- LV (IVS, LVD, LVPW, RVD)
- AV/LA (Ao Root Diam, LA Diam, AV Cusp Sep., Ao Root Ampl)
- MV(D-E, E-F Slope, A-C Interval, EPSS)
- HR (Heart Rate) Atrial HR

PW-Mode:
- MV (Mitral Valve)
- AV (Aortic Valve), TV (Tricuspid Valve)
- PV (Pulmonary Valve)
- LVOT & RVOT Doppler (Left & Right Ventricle Outflow Tract)
- Pulmonic Veins
- PAP (Pulmonary Artery Pressure measurement)
- HR (Heart Rate)
- TEI-Index

C-Mode:
- PISA

Others:
- Diast. Vol (Bi)
- Syst. Vol. (Bi)
- Stroke Volume
- Volume Flow
- Cardiac Output
- Ejection Fraction
- Fractional Shortening
- Myocardial Thickness
- LA/Ao Ratio
- E/A Peak
- Peak Gradient Acceleration
- Mean Gradient
- Mean Gradient Acceleration
- VTI
- TVA
- PG
- PHT
- MVA
- AVA
- ERO
- CVP (Cardio Vascular Profile) Score

Summary Reports

Transrectal calculations

Prostate

Vessel

Summary Reports incl. PSAD, PPSA(1), PPSA(2) calculation

Vascular calculations

Left/Right CCA (Common Carotid Artery)

Left/Right ICA (Internal Carotid Artery)

Left/Right ECA (External Carotid Artery)

Left/Right Vertebral Artery

Left/Right Subclav.

Left/Right Bulb

Vessels

Summary Reports

Gynecology calculations

Uterus

Left/Right Ovary

Left/Right Follicle

Fibroid /Myoma

Endometrial thickness (Dist, Double Dist.)

Cervix Length

Left/Right Ovarian Artery

Left/Right Uterine Artery

Vessels

Pelvic Floor

Left/Right Ovarian Cyst

Left/Right Ovarian Mass

Left/Right Adnexal Cyst

Generic Cyst

Left/Right Adnexal Mass

Generic Mass

Bladder (Length/Width/Height/Vol)

GYN IOTA LR2, Simple Rules and ADNEX Model. (not available in all countries)

IETA unenhanced ultrasound examination and enhanced ultrasound examination – Sonohysterography (not available in all countries)

IDEA Protocol

Uterus classification (ESHRE/ESGE and ASRM)

Summary Reports

Pediatric calculations

Left/Right Hip Joint

Pericallosal Artery

Summary Report

Cephalic calculations

Left/Right ACA (Anterior Cerebral Artery)

Left/Right MCA (Middle Cerebral Artery)

Left/Right PCA (Posterior Cerebral Artery)

Basilar Artery

A-Com. A (Anterior Com. Artery)
P-Com. A (Posterior Com. Artery)
Left/Right CCA (Common Carotid Artery)
Left/Right ICA (Internal Carotid Artery)
Left/Right Vertebral Artery
Vessels
Summary Reports

OB Tables

Age Tables

- AC: ASUM, CFEF, Hadlock_82, Hadlock_84, Hansmann, Hobbins, Jeanty, JSUM, Kurmanavicius, Merz, Nicolaides, Shinozuka, Siriraj, Tokyo
- AD. Persson
- APAD: Merz
- APTD: Hansmann
- APTDxTTD: Shinozuka, Tokyo
- BOD: Jeanty
- BPD: ASUM, ASUM (old), Campbell, CFEF, Chitty (outer-outer) (outer-inner), Eik-Nes, Hadlock_82, Hadlock_84, Hansmann, Hobbins, Jeanty, Johnsen, JSUM, Kurmanavicius, Kurtz, Leung, McLennan, Merz, Nicolaides, OSAKA, Persson, Rempen, Sabbagha, Shinozuka, Siriraj, Tokyo, UltraARG, Verburg
- CEREB: Chitty, Goldstein, HILL, Hobbins, Nicolaides, Verburg
- CLAV: YARKONI
- CRL: ASUM, DAYA, Eik-Nes, Hadlock, Hansmann, Intergrowth, JSUM, McLennan, Persson, Pexters, Nelson, OSAKA, Rempen, Robinson, Robinson_BMUS, Sahota, Shinozuka, Tokyo, Verburg
- FL: ASUM, CFEF, Chitty, Eik-Nes, Hadlock_82, Hadlock_84, Hansmann, Hobbins, Hohler, Jeanty, Johnsen, JSUM, Kurmanavicius, Leung, Persson, Merz, Nicolaides, O'Brien, OSAKA, Shinozuka, Siriraj, Tokyo, UltraARG, WARDA
- FTA: OSAKA
- FIB: Jeanty
- GS: Hansmann, Hellman, Holländer, Nyberg, Rempen, Tokyo
- HC: ASUM, CFEF, Chitty, Hadlock_82, Hadlock_84, Hansmann, Jeanty, Kurmanavicius, Leung, Merz, Nicolaides, Siriraj, Johnsen
- HL: ASUM, Hobbins, Jeanty, Merz, OSAKA
- LV: Tokyo
- MAD: Eik-Nes, eSnurra, Kurmanavicius
- OFD: ASUM, Chitty, Hansmann, Jeanty, Kurmanavicius, Merz, Nicolaides
- RAD: Jeanty, Merz
- TIB: Jeanty Merz
- TAD: CFEF, Merz
- TTD: Hansmann
- ULNA: Jeanty, Merz

Growth Tables

- AC: ASUM, CFEF, Chitty, Hadlock, Hadlock82, Hansmann, Jacot-Guillarmod, Jeanty, Johnsen, JSUM, Kurmanavicius, Lai_Yeo, Lessoway, Leung, Merz, Nicolaides, Paladini, Shinozuka, Siriraj, Stork, Tokyo, Verburg, Medvedev, Intergrowth, WHO
- AD: Persson
- AFI: Moore
- Aorta: Vmax: Rizzo
- AoIst ED, PI, RI, PS, TAmax: DelRio2006
- APAD: Merz
- APTD: Hansmann
- APTDxTTD: Shinozuka_SD
- AxT: Shinozuka, Tokyo
- BOD: Jeanty
- BPD: ASUM, Campbell, CFEF, Chitty, Eik-Nes, Hadlock, Hadlock82, Hansmann, Jacot-Guillarmod, Jeanty, JSUM, Kurmanavicius, Lai_Yeo, Lessoway, Leung, McLennan, Merz, Nicolaides, Paladini, Persson, OSAKA, Sabbagha, Shinozuka, Siriraj, Stork, Tokyo, Verburg, Medvedev, Intergrowth, WHO
- CLAV: YARKONI
- CM: Nicolaides

- CRL: ASUM, Hadlock, Hansmann, Intergrowth, JSUM, McLennan, Persson, OSAKA, Robinson, Robinson 1993, Shinozuka, Tokyo, Pexters, Medvevev
- DV a/S: JSUM
- DV PI: Baschat, JSUM
- DV PLI: Baschat
- DV PVIV: Baschat
- DV S/a: Baschat
- FL: ASUM, CFEF, Chitty, Eik-Nes, Hadlock, Hadlock82, Hansmann, Jacot-Guillarmod, Jeanty, Johnsen, JSUM, Kurmanavicius, Lai_Yeo, Lessoway, Leung, Merz, Nicolaides, O'Brien, OSAKA, Paladini, Persson, Shinozuka, Siriaj, Stork, Tokyo, Verburg, WARDA, Medvedev, Intergrowth, WHO
- FTA: OSAKA
- FIB: Chitty, Jeanty, JFFSD, Siriraj
- FWg: Alexander
- Foot: Chitty
- GS: Hellman, Nyberg, Rempen, Tokyo
- HC: ASUM, CFEF, Chervernak, Chitty, Hadlock, Hadlock82, Hansmann, Jacot-Guillarmod, Jeanty, Johnsen, Kurmanavicius, Lai_Yeo, Lessoway, Leung, Merz, Nicolaides, Paladini, Siriraj, Stork, Verburg, Medvedev, Intergrowth, WHO
- HL: ASUM, Chitty, Jeanty, Lai_Yeo, Merz, JFFSD, OSAKA, Paladini, Siriraj, Medvedev
- IFA: Rotten
- IVC PLI: JSUM
- Lt.Tei(ICT,IRT), Lt.Tei(a,b): Bhorat
- Lung Area Left/Right: Peralta
- LV: Tokyo
- MAD: Eik-Nes, eSnurra, Kurmanavicius
- MainPA Vmax: Rizzo
- MCA CP: Ebbing
- MCA PI: Bahlmann, Ebbing, JSUM
- MCA RI: JSUM, Bahlmann
- MCA PV: Mari
- MCA PS, TAmax: Schaffer
- MNM Ang: deJong-Pleij
- MV E/A: HARADA
- NBL: BUNDUKI, SONEK, Medvedev, Orlandi
- NT: Nicolaides
- OFD: ASUM, Chitty, Hansmann, Jeanty, Kurmanavicius, Merz, Nicolaides, Medvedev, Intergrowth
- MainPA Vmax: Rizzo
- RAD: Chitty, Jeanty, JFFSD, Merz, Paladini, Sirirja
- SAG. AP: Malinger
- SAG. CC: Malinger
- TAD: CFEF, Jacot-Guillarmod, Merz
- TC: Chitkara
- TCD: Goldstein, Hill, Jacot-Guillarmod, Nicolaides, Verburg
- Thym. Dia: Pittyanont
- Thyr. Circ: Ranzini
- ThyTh: Karl
- TIB: Chitty, Jeanty, JFFSD, Merz, Siriraj
- TTD: Hansmann
- TV E/A: HARADA
- ULNA. Chitty, Jeanty, JFFSD, Merz, Paladini, Siriraj
- UmbArt PI: Ebbing, JSUM, Merz, Schaffer
- UmbArt RI: JSUM, Merz, Kurmanavicius, Schaffer
- UtArtPI: Gomez, Merz, Schaffer
- UtArtRI: Merz, Schaffer
- Vermis A: Malinger
- Vermis C: Malinger
- Fractional Limb Avol/Tvol: Lee

Fetal Weight Estimation (EFW)

- Campbell (AC)
- Hadlock (AC, BPD)
- Hadlock 1 (AC, FL)
- Hadlock 2 (BPD, AC, FL)
- Hadlock 3 (HC, AC, FL)
- Hadlock 4 (BPD, HC, AC, FL)
- Hansmann (BPD, TTD)
- Intergrowth (AC, HC)
- Lee (AVOL; AC, AVOL; AC, BDP, AVOL; TVOL; AC, TVOL; AC, BDP, TVOL)
- Merz (AC, BPD)
- Osaka (BPD, FTA, FL)
- Persson (BPD, MAD, FL)
- Persson 2, Schild (HC, AC, FL)
- Shepard (AC, BPD)
- Shinozuka 1 (BPD, ADTP, TTD, FL)
- Shinozuka 2 (BPD, FL, AC)
- Shinozuka 3 (BPD, APTD, TTD, LV
- Tokyo (BPD, APTD, TTD, FL)

Gestational Age by EFW

- Hadlock, JSUM 2001, Osaka, Shinozuka, Tokyo

Fetal Weight Growth FWG

- Alexander, Ananth, Bourgogne, Brenner, Burgundy, CFEF, Doubilet, Duryea, Ego, Eik-Nes, Hadlock, Hansmann, Hansmann (86), Hobbins/Persutte, Intergrowth, Johnsen, Jsum 2001, Kramer, Persson, Osaka, Shinozuka, Tokyo, Williams, WHO, Yarkoni

Fetal Ratios

CC/TC

CI (BPD/OFD) (Hadlock)

FL/AC (Hadlock)

FL/BPD (Hohler)

FL/HC (Hadlock), (WHO)

HC/AC (Campbell)

Va/Hem (Nicolaides), (Hansmann)

Vp/Hem (Nicolaides)

LHR (Peralta)

LTR

CVR (Peranteau)

TT (Karl)

AOI/DUCTART (DelRio)

MD/MX (Rotten)

Probes

C1-6-D	
XDclear Wide Band Convex Probe	
Applications	Abdomen, OB, GYN, Fetal Cardio
Max. Bandwidth (-20dB) †††	2-5 MHz
Number of Elements	192
Convex Radius	55 mm
FOV	113º
Foot Print	70.2 x 15.6 mm
Depth	Max. 50 cm
Center Frequency	3.4 MHz
B-Mode Frequency	2.00 – 2.00 MHz
Doppler Frequency	2,50 – 3.85 MHz
Harmonic Frequency	2.00 – 2.56 MHz

C2-9-D	
XDclear Wide Band Convex Probe	
Applications	Abdomen, OB, GYN, Pediatrics, Fetal Cardio
Max. Bandwidth (-20dB) †††	3-9 MHz
Number of Elements	192
Convex Radius	43 mm
FOV	100º
Foot Print	51.0 x 14.0 mm
Depth	Max. 28 cm
Center Frequency	5.0 MHz
B-Mode Frequency	4.00 – 7.14 MHz
Doppler Frequency	3.03 – 5.00 MHz
Harmonic Frequency	2.63 – 3.57 MHz

RAB6-D	
Wide Band Convex Volume Probe	
Applications	Abdomen, OB, GYN, Pediatrics
Max. Bandwidth (-20dB) †††	2-7 MHz
Number of Elements	192
Convex Radius	47 mm
Volume Sweep Radius	24 mm
FOV	90° (B), 90° x 85° (Volume scan)
Foot Print	62.2 x 34.0 mm
Depth	Max. 26 cm
Center Frequency	4.4 MHz
B-Mode Frequency	3.23 – 6.67 MHz
Doppler Frequency	3.03 – 5.00 MHz
Harmonic Frequency	2.63 – 3.70 MHz

RM7C-D	
Wide Band Convex Volume Probe with Active Matrix Array	
Applications	Abdomen, OB, GYN, Pediatrics, Fetal Cardio
Max. Bandwidth (-20dB) †††	2-8 MHz
Number of Elements	576
Convex Radius	50 mm
Volume Sweep Radius	22.7 mm
FOV	90° (B), 90° x 85° (Volume scan)
Foot Print	65.7 x 40.2 mm
Depth	Max. 26 cm
Center Frequency	4.5 MHz
B-Mode Frequency	4.00 – 7.14 MHz
Doppler Frequency	3.03 – 4.17 MHz
Harmonic Frequency	2.63 – 3.33 MHz

M5Sc-D	
XDclear Wide Band Phased Array Probe	
Applications	Cardiology, OB, Fetal Echo, Pediatrics, Cephalic
Max. Bandwidth (-20dB) †††	1-4MHz
Number of Elements	240
FOV	90°
Foot Print	27.5 x 18.1 mm
Depth	Max. 24 cm
Center Frequency	2.9 MHz
B-Mode Frequency	2.44 – 3.33 MHz
Doppler Frequency	1.85 – 2.50 MHz
Harmonic Frequency	1.61 – 2.17 MHz

6S-D	
Wide Band Phased Array Probe	
Applications	Small Parts, Cardiology, Pediatrics
Max. Bandwidth (-20dB) †††	2-7 MHz
Number of Elements	96
FOV	90°
Foot Print	23.5 x 16.8 mm
Depth	Max. 18 cm
Center Frequency	4.5 MHz
B-Mode Frequency	4.17 – 6.25 MHz
Doppler Frequency	2.94 – 4.35 MHz
Harmonic Frequency	3.13 – 4.17 MHz

Probes (cont.)

L8-18i-D	
Wide Band Linear Probe	
Applications	Small Parts, MSK, Pediatric
Max. Bandwidth (-20dB) †††	5-14 MHz
Number of Elements	168
FOV	25 mm
Foot Print	34.8 x 11.1 mm
Depth	Max. 12 cm
B-Mode Steering Angle	7°/14°/25°
Color Doppler Steering Angle	7°/14°/25°
Center Frequency	9.5 MHz
B-Mode Frequency	7.14 – 12.50 MHz
Doppler Frequency	6.67 – 10.00 MHz
Harmonic Frequency	5.88 – 7.15 MHz

11L-D	
Wide Band Linear Probe	
Applications	Small Parts, Pediatrics, MSK, Peripheral Vascular, Breast
Max. Bandwidth (-20dB) †††	4-10 MHz
Number of Elements	192
FOV	38 mm
Foot Print	47.1 x 12.7 mm
Depth	Max. 11 cm
B-Mode Steering Angle	7°/14°/20°
Color Doppler Steering Angle	7°/14°/20°
Center Frequency	7.3 MHz
B-Mode Frequency	6.67 – 10.00 MHz
Doppler Frequency	5.26 – 7.14 MHz
Harmonic Frequency	4.55 – 5.00 MHz

9L-D	
Wide Band Linear Probe	
Applications	Small Parts, Pediatrics, MSK, Peripheral Vascular, OB
Max. Bandwidth (-20dB) †††	3-8 MHz
Number of Elements	192
FOV	44 mm
Foot Print	53.0 x 14.1 mm
Depth	Max. 14 cm
B-Mode Steering Angle	7°/14°/20°
Color Doppler Steering Angle	7°/14°/20°
Center Frequency	5.5 MHz
B-Mode Frequency	4.55 – 10.00 MHz
Doppler Frequency	3.70 – 5.26 MHz
Harmonic Frequency	2.86 – 2.86 MHz

ML6-15-D	
Wide Band Matrix Linear Probe	
Applications	Small Parts, Peripheral Vascular, Pediatrics, MSK, Breast
Max. Bandwidth (-20dB) †††	4-13 MHz
Number of Elements	1008
FOV	50 mm
Foot Print	60.7 x 16 mm
Depth	Max. 16 cm
B-Mode Steering Angle	7°/14°/20°
Color Doppler Steering Angle	7°/14°/20°
Center Frequency	9.0 MHz
B-Mode Frequency	8.33 – 11.11 MHz
Doppler Frequency	6.25 – 9.09 MHz
Harmonic Frequency	5.00 – 6.25 MHz

RSP6-16-D	
Wide Band Linear Volume Probe	
Applications	Small Parts, Pediatrics, MSK, Peripheral Vascular, Breast
Max. Bandwidth (-20dB) †††	6-18 MHz
Number of Elements	192
Volume Sweep Radius	81 mm
FOV	38.4 mm (B), 38.4 mm x 29° (Volume scan)
Foot Print	48.6 x 55.9 mm
Depth	Max. 8 cm
B-Mode Steering Angle	7°/14°/20°
Color Doppler Steering Angle	7°/14°/20°
Center Frequency	11.5 MHz
B-Mode Frequency	8.33 – 12.50 MHz
Doppler Frequency	6.25 – 8.33 MHz
Harmonic Frequency	5.26 – 5.26 MHz

IC5-9-D	
Wide Band Convex Probe	
Applications	OB, GYN, Transrectal
Max. Bandwidth (-20dB) †††	4-9 MHz
Number of Elements	192
Convex Radius	10 mm
FOV	189°
Foot Print	21.2 x 17.2 mm
Depth	Max. 18 cm
Center Frequency	5.8 MHz
B-Mode Frequency	5.00 – 9.09 MHz
Doppler Frequency	4.00 – 5.26 MHz
Harmonic Frequency	3.45 – 3.85 MHz

Probes (cont.)

RIC5-9-D	
Wide Band Convex Volume Probe	
Applications	OB, GYN, Transrectal
Max. Bandwidth (-20dB) †††	4-9 MHz
Number of Elements	192
Convex Radius	10.1 mm
Volume Sweep Radius	11.6 mm
FOV	189°(B), 189° x 120° (Volume scan)
Foot Print	22.4 x 22.6 mm
Depth	Max. 18 cm
Center Frequency	6.6 MHz
B-Mode Frequency	5.00 – 9.09 MHz
Doppler Frequency	4.00 – 5.26 MHz
Harmonic Frequency	3.45 – 3.85 MHz

RIC6-12-D	
Wide Band Convex Volume Probe	
Applications	OB, GYN, Transrectal
Max. Bandwidth (-20dB) †††	5-13 MHz
Number of Elements	256
Convex Radius	10.1 mm
Volume Sweep Radius	11.6 mm
FOV	190°(B), 190° x 120° (Volume scan)
Foot Print	22.4 (B) x 22.6 (V) mm
Depth	Max. 13 cm
Center Frequency	9.1 MHz
B-Mode Frequency	6.25 – 10.00 MHz
Doppler Frequency	6.67 – 8.33 MHz
Harmonic Frequency	4.76 – 5.56 MHz

eM6C G3	
Wide Band Convex Volume Probe with Active 2D Electronic Matrix Array Technology	
Applications	Abdomen, OB, GYN, Fetal Cardio
Max. Bandwidth (-20dB) †††	2-6 MHz
Number of Elements	8192
Convex Radius	51 mm
Volume Angle	85°
FOV	85° (B), 85° x 90° (Volume Scan)
Foot Print	60.3 x 32.3 mm
Depth	Max. 26 cm
Center Frequency	4.0 MHz
B-Mode Frequency	3.85 – 5.56 MHz
Doppler Frequency	2.38 – 3.57 MHz
Harmonic Frequency	2.22 – 3.13 MHz

Connectivity & Service Tools

External Connectors
Ethernet Network (RJ45 -1.0Gbps/100Mbps/10Mbps) with connector protection
Wireless Network interface (USB) (Option)
USB 3.0 (5x)
USB-C (6x)
S-Video out
VGA out
HDMI out

Service Tools
Data Export capabilities for Asset Performance Analytics
Probe Check: On-board probe quality assessment determining probe performance based on electroacoustic or impedance measurements in accordance with FDA 510(k) requirements.
AVURI (cloud-based preset management)
Electronic delivery of software updates

Safety Conformance

Applicable standards
EN55011 group 1 class A (CISPR 11 amendment 1)
CE marked to Council Directive 93/42/EEC on Medical Devices / Medical Device Regulation (MDR) 2017/745 on Medical Devices
IEC†† 60601-1 Electrical Medical Equipment
IEC†† 60601-1-2 Electromagnetic compatibility
IEC†† 60601-1-6 Usability
IEC†† 62304 Software Life Cycle Processes
IEC†† 62366 Application of usability engineering to medical devices
IEC†† 60601-2-37 Particular requirements for the safety of ultrasound medical diagnostic and monitoring equipment
ISO 10993 Biological evaluation of medical devices
IEC 62359 Ultrasonic - Field characterization - Test methods for the determination of thermal and mechanical indices related to medical diagnostic ultrasonic fields
WEEE (Waste Electrical and Electronic Equipment)
ROHS according to 2011/65/EU and it's amendment (EU) RoHS 2015/863
NRTL certified according IEC 60601-1 (TÜVPS)
CSA 22.2, 60601.1 by an SCC accredited Test Lab

†Not for sale in the USA. Not approved or cleared by the U.S. FDA. Please contact your GE Sales Representative for information about availability in your area.

†† Including national deviations

††† Used frequencies are dependent on probe settings and parameters and are displayed on the ultrasound screen

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