

SPECIFICAȚIE TEHNICĂ COMPLETATĂ

Model: VOLUSON S10; Producator: GE Ultrasound Kore, GE Medical Systems,

Tara: Korea si France

Specificarea tehnică deplină solicitată de către autoritatea contractantă	Specificarea tehnică deplină propusă de către autoritatea ofertantă
Ultrasonograf General, OB-GYN, performanță înaltă PROBE PORTURI ≥ 4 PROBE TIP, MHz Linear cu valoarea minima nu mai mare de 3 Mhz - si cu valoarea maxima nu mai mică de 8 Mhz, banda activă sau câmpul de vedere minim 40 mm si maxim 50 mm Convex tip matricială / XD Clear/ Single cristal sau altă tehnologie analogică cu valoarea minima nu mai mare de 3 Mhz - si cu valoarea maxima nu mai mică de 8 Mhz, banda activă sau câmpul de vedere minim 80 ° si maxim 100 ° Endovaginal 4D cu valoarea minima nu mai mare de 4 Mhz - si cu valoarea maxima nu mai mică de 9 Mhz, banda activă sau câmpul de vedere minim 100 ° si maxim 180 ° Volum 4D cu valoarea minima nu mai mare de 2 Mhz - si cu valoarea maxima nu mai mică de 8 Mhz, banda activă câmpul de vedere minim 80 ° si maxim 90 ° NIVELE DE GRI ≥ 256 PREPROCESARE, canale digitale ≥ 300.000 GAMA DINAMICA $\geq 250\text{dB}$ Adâncimea de scanare minima $\leq 1\text{ cm}$ maxima $\geq 35\text{ cm}$ Posibilitate de rotare a imaginii minim până la $\geq 180^\circ$ Posibilitatea de oglindire a imaginii Stinga / Dreapta da Cine memorie $\geq 500\text{ MB}$ POSTPROCESARE da	Ultrasonograf General, OB-GYN, performanță înaltă DA PROBE PORTURI ≥ 4 DA Ref. pag. 1 din Voluson S10 BT22 Datasheet PROBE TIP, MHz Linear cu valoarea de 4 Mhz - 13 Mhz, banda activă sau câmpul de vedere/FOV 50 mm. Model: ML6-15-RS, Ref. Voluson Signature Series PROBE GUIDE pag. 3 Convex tip matricială / XD Clear/ Single cristal sau altă tehnologie analogică cu valoarea minima de 2.5 Mhz - si cu valoarea maxima de 9.1 Mhz, banda activă sau câmpul de vedere 94 °. Model: C2-9-RS Ref. Voluson Signature Series PROBE GUIDE pag.2 Endovaginal 4D cu valoarea minima nu mai mare de 4 Mhz - si cu valoarea maxima nu mai mică de 9 Mhz, banda activă sau câmpul de vedere minim 100 ° si maxim 180 ° Model: RIC5-9A-RS Ref. Voluson Signature Series PROBE GUIDE pag.2 Volum 4D cu valoarea minima nu mai mare de 2 Mhz - si cu valoarea maxima nu mai mică de 8 Mhz, banda activă câmpul de vedere minim 80 ° si maxim 90 ° Model: RAB6-RS Ref. Voluson Signature Series PROBE GUIDE pag.2 NIVELE DE GRI 256 DA Ref. Voluson S10 BT22 Datasheet pag. 5 PREPROCESARE, canale digitale 1.714.833,00 DA Ref. Voluson S10 BT22 Datasheet pag. 5 GAMA DINAMICA 256 dB DA Ref. Voluson S10 BT22 Datasheet pag. 5 Adâncimea de scanare minima între valorile 0-1 cm maxima 42 cm in depeneta de sonda care se foloseste. DA Ref. Voluson S10 BT22 Datasheet pag. 5 Posibilitate de rotare a imaginii minim până la 180 ° DA Ref. Voluson S10 BT22 Datasheet pag. 5 Posibilitatea de oglindire a imaginii Stinga / Dreapta DA Ref. Voluson S10 BT22 Datasheet pag. 5 Cine memorie 512 MB Ref. Voluson S10 BT22 Datasheet pag. 9 POSTPROCESARE DA

IMAGINE MODURI M-mod da M-mod și 2-D/B-Mode da 3-D (automatic) da 4-D (live 3-D) da Harmonic imaging da STIC da STIC in regim Doppler color da STIC in regim Doppler tisular da Elastografie tip compresivă activă pentru sonda liniră și endocavitară cu care va fi livrat dispozitivul da DOPPLER Tip CW, PW, CFM, TD. Afișare frecvență da Afișare viteză da Power Doppler da HPRF da Duplex da Triplex da FUNCȚIONALITĂȚI Măsurători digitale da Configurarea Masurartorilor conform necesitatilor utilizatorului da Diapazon dimamic selectabil da Focalizare de transmisie ajustabilă da Măsurători pe reluarea video da Raport sau formarea protocolului final de către ecograf. Cu posibilitatea de schimbare conform necesităților utilizatorului final. da	IMAGINE MODURI M-mod DA Ref. Voluson S10 BT22 Datasheet pag. 2 M-mod și 2-D/B-Mode DA Ref. Voluson S10 BT22 Datasheet pag. 6 3-D (automatic) DA Ref. Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag 11-43/353 4-D (live 3-D) DA Harmonic imaging DA Coded Harmonic DA Ref. Voluson S10 BT22 Datasheet pag. 3 STIC DA Ref. Voluson S10 BT22 Datasheet pag. 9 STIC in regim Doppler color Ref. Voluson S10 BT22 Datasheet pag. 3 STIC in regim Doppler tisular Ref. Voluson S10 BT22 Datasheet pag. 3 Elastografie tip compresivă activă pentru sonda liniră și endocavitară cu care va fi livrat dispozitivul DA Probes: • 12L-RS • IC9-RS • ML6-15-RS • IC9B-RS • RIC5-9A-RS Ref Voluson S10 BT22 Datasheet pag. 3 DOPPLER Tip CW, PW, CFM, TD. DA Ref Voluson S10 BT22 Datasheet pag. 11 Afișare frecvență DA Ref Voluson S10 BT22 Datasheet pag. 4 Afișare viteză DA Ref Voluson S10 BT22 Datasheet pag. 6 Power Doppler DA Ref Voluson S10 BT22 Datasheet pag. 2 HPRF DA Ref Voluson S10 BT22 Datasheet pag. 2 Duplex DA Ref Voluson S10 BT22 Datasheet pag. 8 Triplex DA Ref Voluson S10 BT22 Datasheet pag. 2 FUNCȚIONALITĂȚI Măsurători digitale DA Ref. Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag 10-1/275 Configurarea Masurartorilor conform necesitatilor utilizatorului DA Ref. Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag 11-58/368 Diapazon dimamic selectabil DA Ref. Voluson S10 BT22 Datasheet pag. 7 Focalizare de transmisie ajustabilă DA ca zona de focusare si puncte de focusare Ref. Voluson S10 BT22 Datasheet pag. 5 Măsurători pe reluarea video DA in regim de post procesare si CINE Ref. Voluson S10 BT22 Datasheet pag. 5 si 6. Raport sau formarea protocolului final de către ecograf. Cu posibilitatea de schimbare conform necesităților utilizatorului final. DA Ref. Voluson™
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Tehnologia de SonoBiometrie, măsurare autmata a dimensiunilor BPD, AC, HC, FL, HL. Da Regim 4D (3D live) si 3D avansat cu posibilitate de schimbare a mapilor de culori, prezenta tehnologie de formare a culori nature a fatului. Da Regim de postprocesare pentru imaginile 4D (3D live) si 3D cu posibilitate de taiere a sectiunilor care nu sint necesare, schimbare unghiului de vizualizarea, adincimei pe toate axelor de formare a imaginii. Da In formarea imaginii 3D si 4D prezenta obligatoriu a tehnologie de reconstrucie "slice to slice" sau reconstruci tomografica cu posibilitate de control a grosimeii da Formare a tabelului folicular cu clasificare după diametru in regim automat. La necesitate se va putea adauga voliculi care nu a fost inclusi in tabel. Da Regim non-doppler de diagnostic. Este obligator prezenta acetui tip de tehnologie care va fi disponibil pentru tote sondele care va fi livrat dispozitivul. In caz că se va prezenta o tehnologie analogica sa fie prezent o monstra vidio pentru studiul arburilui vascular la rinichi mama si fat (trimestru 3), Cap fat trimestru 2,3, ficat mama si fat. La fel pentru vasele periferice. Da Regim specilizat pentru vizualizarea scheletului fatului in trimestru 3. prezentarea dovezei. (a imaginii pentru modelul de dispozitiv propus) da	S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag 10-27/301, 10-28/302 Tehnologia de SonoBiometrie, măsurare autmata a dimensiunilor BPD, AC, HC, FL, HL. DA Ref. Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag 10-21/295, Regim 4D (3D live) si 3D avansat cu posibilitate de schimbare a mapilor de culori, prezenta tehnologie de formare a culori nature a fatului. DA Ref. Voluson HDlive Technologies Regim de postprocesare pentru imaginile 4D (3D live) si 3D cu posibilitate de taiere a sectiunilor care nu sint necesare, schimbare unghiului de vizualizarea, adincimei pe toate axelor de formare a imaginii. DA Ref. Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag 8 - 47/219 si deja in cine lupe 4D se taie sectiunea care apare ca umbra sau este artefact. In formarea imaginii 3D si 4D prezenta obligatoriu a tehnologie de reconstrucie "slice to slice" sau reconstruci tomografica cu posibilitate de control a grosimeii DA Ref. Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag 8 - 50/222, 8-26/198 Formare a tabelului folicular cu clasificare după diametru in regim automat. La necesitate se va putea adauga voliculi care nu a fost inclusi in tabel. DA SonoAVC Folicle imagine clinica Ref Voluson™ Sono-Automation in cazul i ncare nu s-a detectat toate folicule se pot adauga dupa care sint clasificate in tabel in Report sau Work Sheet Ref . Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag. 8-64 din Regim non-doppler de diagnostic. Este obligator prezenta acetui tip de tehnologie care va fi disponibil pentru tote sondele care va fi livrat dispozitivul. In caz că se va prezenta o tehnologie analogica sa fie prezent o monstra vidio pentru studiul arburilui vascular la rinichi mama si fat (trimestru 3), Cap fat trimestru 2,3, ficat mama si fat. La fel pentru vasele periferice. DA prezenta tehnologie non doppler B-Flow Ref. B-Flow Technology este pe baza sistemelor in care prima ora a fost implimentat. Acesta tehnologie fin acum si pe seria Volsuon S10. La fel ca tehnologie care completeaza informatia este Radial flow Ref Radiantflow Technology Regim specilizat pentru vizualizarea scheletului fatului in trimestru 3. prezentarea dovezei. (a imaginii pentru modelul de dispozitiv propus) DA Este posibil prin reconstrucie 4D/3D Ref Voluson HDlive Technologies.
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Regim specilizat pentru dopler color asa numitul HD Flow, avit o acuratetie mai mare de cit doplerul color standart. Prezetnare imagini pentru modeul de dispozitiv propus da Prezetna tehnologie de marire a imaginii fara a micsora rezolutia contrastul si claritate zonei care este marite. Da Sistema automatizat de ajustare a imaginii pentru regim 2D/ B-mode da Ajustarea fregventelor de lucru automat de catre dispozitiv da Tehnologia Omniview sau analogic vint un algoritm care se combina cu 3D dar vin cam de scanare separat. Sa se prezinta dovezi. Da Regim de formare panoramica a imaginiei pentru sonda linira (virtual convex) da Masuratori automatizate inregim de dopler pulsativ (PW) da Vizulizare de rezolutie inalta in 1 trimestru pentru masurarea translucenței nucleale da PAN/ZOOM imagine în timp real 13428-7092 imagine înghețată da STOCARE IMAGINI Capacitate ≥ 500GB Cine da DICOM 3.0 da Porturie pentru intrari iesiri USB 2.0 si 3.0 da HDMI da VGA da LAN/NET RJ45 da	Regim specilizat pentru dopler color asa numitul HD Flow, avit o acuratetie mai mare de cit doplerul color standart. Prezetnare imagini pentru modeul de dispozitiv propus DA Ref. Voluson S10 BT22 Datasheet pag. 6 si Ref Image Callery voluson Prezetna tehnologie de marire a imaginii fara a micsora rezolutia contrastul si claritate zonei care este marite. DA HD ZOOM ref. Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag. 4-6/82 este prezentat ca doar oo marire si focusare concetara pezona marita in cit detalii pentur diagnostic devin cit mai multe. Sistema automatizat de ajustare a imaginii pentru regim 2D/ B-mode DA Automatic Optimization Ref. Voluson S10 BT22 Datasheet pag 3 Ajustarea fregventelor de lucru automat de catre dispozitiv DA Focus and Frequency Composite (FFC) Datasheet pag 3 Tehnologia Omniview sau analogic vint un algoritm care se combina cu 3D dar vin cam de scanare separat. Sa se prezinta dovezi. DA este prezenta odata inluzint si Advance VCI pentru protocolul de Uterine Trace Ref. Voluson S10 BT22 Datasheet pag 1 Regim de formare panoramica a imaginiei pentru sonda linira (virtual convex) DA Ref. Voluson S10 BT22 Datasheet pag 7 Masuratori automatizate in regim de dopler pulsativ (PW) DA Ref Voluson S10 BT22 Datasheet pag 13 Vizulizare de rezolutie inalta in 1 trimestru pentru masurarea translucenței nucleale DA Ref Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag. 10-19/293 este prezentat dimniunea de 2,48 mm detectata automat. PAN/ZOOM imagine în timp real 13200 Frames imagine înghețată DA aceasta cifra poate varia in depende de regimul folosit si preupune imagine inghetat la cine loop complet. STOCARE IMAGINI Capacitate - 500GB DA Ref. Voluson S10 BT22 Datasheet pag.2 Cine DA Ref. Voluson S10 BT22 Datasheet pag.6 DICOM 3.0 DA Ref. Voluson S10 BT22 Datasheet pag.3 Porturie pentru intrari iesiri USB 2.0 si 3.0 DA DA Ref. Voluson S10 BT22 Datasheet pag.17 HDMI DA Ref. Voluson S10 BT22 Datasheet pag. 17 VGA DA Ref. Voluson S10 BT22 Datasheet pag. 17 LAN/NET RJ45 DA Ref. Voluson S10 BT22 Datasheet pag. 17
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PACHETE DE ANALIZĂ Obstetric da Ginecologie da Abdomen da Small Parts/ Parti moi da Sin da Vascular da Pediatric da Cardiologie da Transrectal da Cap da Muscoshileal (MSK) da Omniview sau anlogic da Elastografie tip compresivă semicantitativa da MONITOR Diagonala $\geq 23"$ Rezolutia Brat articulat cu posibilitate de ajustare pe inaltime so articulare dreapta stinga da DIVIZARE MONITOR Prezenta obligatoriu a monitorului de control da Tehnologie Touch screen da Diagonala $\geq 10"$ Claviatura Integrata pe consola, nu se vor accepta tip glisanta sau tip digitala integrata pe monitorul de control da Iluminare din spate da Iluminare cconsola Control a intesitati iluminari console pentru butoane si claviatura da Butoane programbile pentru utilizator da Consola de lucru Ajustare inaltime da Ajustare stinga si dreapta fara miscarea totala a dispozitivului fata de podea. Da Sertar pentru cosumabile integrat da Prezeta rotilor minim 4	PACHETE DE ANALIZĂ Ref. Voluson S10 BT22 Datasheet pag. 2 Obstetric DA Ginecologie DA Abdomen DA Small Parts/ Parti moi DA Sin DA Vascular DA Pediatric DA Cardiologie DA Transrectal DA Cap DA Muscoshileal (MSK) DA Omniview sau anlogic DA Elastografie tip compresivă semicantitativa DA MONITOR Diagonala - 23" DA Ref. Voluson S10 BT22 Datasheet pag. 2 Rezolutia Full HD 1920x1080 pixel Ref. Voluson S10 BT22 Datasheet pag. 2 Brat articulat cu posibilitate de ajustare pe inaltime so articulare dreapta stinga DA Ref. Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag. 3-12/72 DIVIZARE MONITOR Prezenta obligatoriu a monitorului de control DA reg. Voluson S10 BT22 Datasheet pag. 2 Tehnologie Touch screen DA ref. Voluson S10 BT22 Datasheet pag. 2 Diagonala 10" DA Voluson S10 BT22 Datasheet pag. 2 Claviatura Integrata pe consola, nu se vor accepta tip glisanta sau tip digitala integrata pe monitorul de control DA Ref. Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag. 3-12/72 Iluminare din spate DA Ref. Voluson S10 BT22 Datasheet pag. 2 Iluminare consola Control a intesitati iluminari console pentru butoane si claviatura DA Ref. Voluson S10 BT22 Datasheet pag. 2 Butoane programbile pentru utilizator DA Consola de lucru Ajustare inaltime DA Ajustare stinga si dreapta fara miscarea totala a dispozitivului fata de podea. DA Ref. Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag. 3-5 / 65 Sertar pentru cosumabile integrat DA in cazul ca nu este inclus Termoprinter Ref. Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag. 3-4 / 64 Prezeta rotilor minim 4 DA
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Vezi Anexa 10

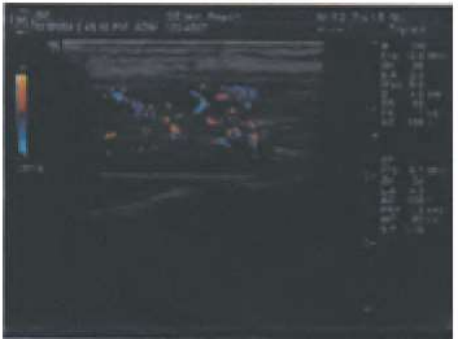
Frine minim 4	Frine minim 4 DA Ref. Ref. Voluson™ S10 / Voluson™ S10 Expert / Voluson™ S8t Instrucțiuni de utilizare pag. 3-4 / 64
Termoprinter alb/negru integrat da	Termoprinter alb/negru integrat DA
Printer extern Prezentarea listei de printere cu care posibil de conectat dispozitivul da	Printer extern Prezentarea listei de printere cu care posibil de conectat dispozitivul DA
	Tote tipurile de printer conform Standrtului PCL6 (este producaotrul HP)
	Si orce alt producaotr pentru ca sistema permite instalrea printerilor conform standartelor si posibilitatilor instituie medicale. Meotoda de conectare LAN sau Cablu USB.



GE Medical Systems

Name : GE Test	Patient ID : 123-4567	Date : 07/09/2004
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Comments

Test exam

Figure 13-206. Report Example

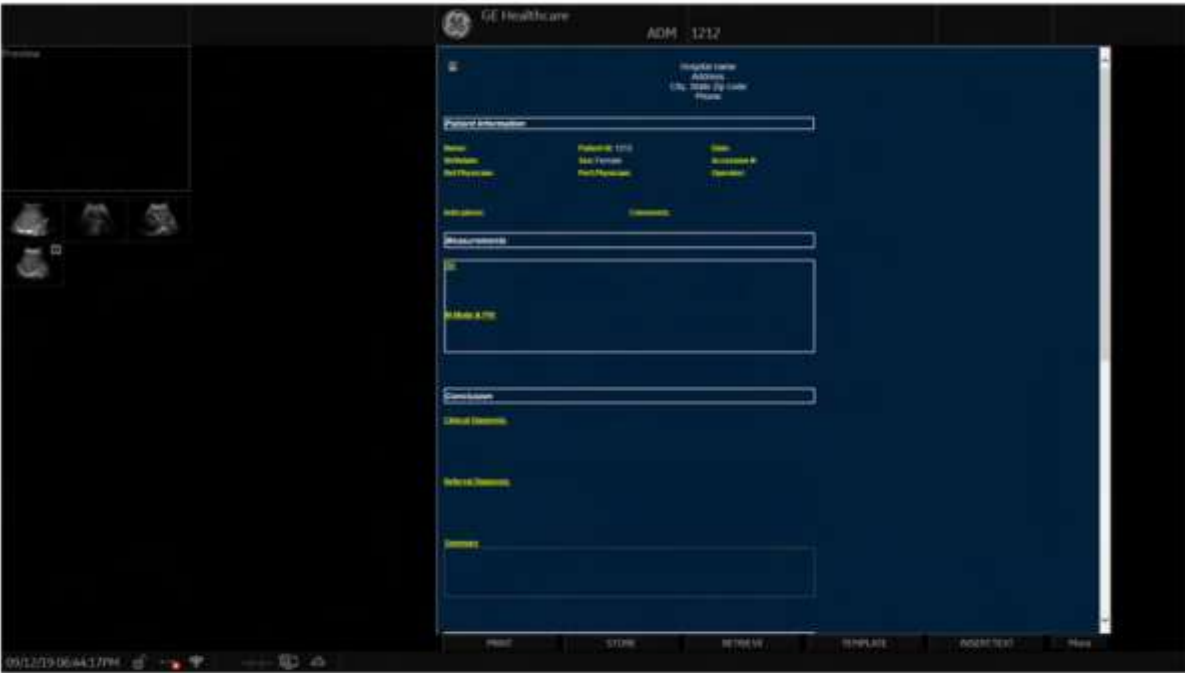


Figure 13-207. Report Page Example

General	OB1
Abdomen...	OB1-4Images
Adult...	OB1-Advanced
Carotid...	OB1-Basic
General-complete	OB1-4Images_worksheet
Gyn...	OB1-Advanced_worksheet
OB1...	OB1-Basic_worksheet
OB23...	back
Prostate...	
Cancel	

Figure 13-208. Available Template list

Voluson S10 BT22

Data Sheet

Product description

The Voluson™ S10 BT22 helps deliver diagnostic confidence through extraordinary image quality, sophisticated fetal assessment tools, easy-to-use automation tools, all combined in an innovative ergonomic design.

Highlights

- Lightweight and maneuverable
- 23" High resolution LCD LED Display
- 10.1" Touch panel
- 4 Active Probe Ports
- Battery Pack (Sleep Mode – Fast Wake)
- Probe Favorites
- Automatic Optimization
- Auto TGC
- Wide Sector
- Radiantflow
- HD-Flow™
- B-Flow™
- 3D Multiplanar Display
- STIC
- Anatomical M-Mode
- Real-Time 4D
- HDlive™
- Uterine Trace (incl. Advanced VCI with OmniView)
- 3D Print File Export
- Advanced VCI with OmniView
- Elastography (incl. Analysis)
- Coded Contrast Imaging[†]
- Sono-Automation Technology
 - SonoAVC™follicle
 - SonoAVCantral^{2.0}
 - SonoL&D
 - SonoVCAD™labor
 - SonoNT™ / SonoIT
 - SonoVCADheart
 - SonoCNS
 - SonoBiometry
 - SonoFHR
 - SonoRenderlive
- Scan Assistant
- Report Editor
- On Board Archive including preview and Pre-selection
- Education Videos



General Specifications

Dimensions and weight	
Height (minimum)	1380mm (54.3 in)
Height (maximum)	1730mm (68.1 in)
Adjustable	mechanical
Width (UI)	620mm (24.4 in)
Depth (overall)	865mm (34.1 in)
Weight (no Peripherals)	198 lbs / 90kg
Weight (max)	267 lbs / 121 kg

Power supply	
Voltage	100 – 240 VAC
Frequency	50/60 Hz (+/-2%)
Power	Max. 900 VA Including all options. Typical power consumption ~170VA
Thermal Output	Max. 3071 BTU/h (Typical 581 BTU/h)
Battery (Option)	20 min scanning, longer in standby
Sleep Mode (low power state) – Fast Wake in approximately 15 seconds	

Console design	
4 Active Universal Probe Ports	
Integrated HDD	500 GB
Integrated SSD (Option)	1 TB
Operating System: Windows** 10 IoT Enterprise 64 bit	
Integrated DVD+R(W)/CD-R(W) drive	
On-board storage for Peripherals	
4 Wheels	Diameter 125 mm (4.9 inch)
Integrated cable management	
Front & rear handles	

User Interface

Operator keyboard	
Adjustable User Interface:	
- Rotation: adjustable +/- 30° from center - Height: 810 mm (31.9 in) – 1010 mm (39.8 in)	
Ergonomic hard key layout (interactive back-lighting) with backlit alphanumeric keyboard and trackball	
Customizable trackball back light color	
6 programmable print/store/export keys for printing, archiving and exporting	
6 Programmable probe favorite keys for immediate access to frequently used probes, applications, and modes	
5 Integrated probe holders including Horizontal TV probe holder	

Touch screen	
10.1" high resolution color LCD touch panel	
Multi-Touch based User Interface with interactive dynamic Software Menu	
xTouch capable, supporting Volume rotation, MagiCut, HD/live light source manipulation and OmniView	
Resolution 1280 x 800 pixel (WXGA)	
Brightness adjustable	

Monitor	
23" high resolution LCD LED Display with DVI interface	
Resolution: Full HD 1920 x 1080 pixel	
Image Size: 1136 x 786 (XL format: 1604 x 786)	
Fully Articulating Monitor Arm	
- Tilt angle: +30°/-90° - Rotate: +90°/-90° - Horizontal Range of Motion: >250 mm (9.8 in) - Vertical Range of Motion: >100 mm (3.9 in)	
Digital backlight and color temperature adjustment. Ten default settings available:	
- Warm: Extra Dark, Dark, Semi Dark, Light, Extra Light - Cold: Extra Dark, Dark, Semi Dark, Light, Extra Light	

System Overview

Exam types	
Obstetrics	
Gynecology	
Abdominal	
Small Parts	
Breast	
Vascular	
Pediatrics	
Cardiology	
Transrectal	
Cephalic	
Musculoskeletal (MSK)	

Operating modes	
Brightness Mode (B-Mode) (2D)	
Motion Mode – M-Mode (conventional M-Mode)	
Anatomical M-Mode (AMM)	
Pulsed Wave Doppler (PW) with HPRF	
Continuous Wave Doppler imaging (CW)	
Color Flow Doppler mode (CFM)	
Power Doppler Mode (PD)	
High Definition Power Doppler (HD-Flow™)	
Tissue Doppler Mode (TD)	
B-Flow™ (BF)	
Compression Elastography	
Contrast Imaging Mode†, including Quantification Capabilities	
Combination modes: M/CFM, M/HD-Flow, M/TD, PW/CFM, PW/HD-Flow, PW/PD	
Extended View (XTD View)	
Volume Mode (3D/4D):	
3D Static - Real-Time 4D - VCI-A - VCI-OmniView - Spatio-Temporal Image Correlation 4D Biopsy	

Scanning methods	
Electronic Sector/Convex/Linear	
Mechanic Volume Sweep	

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
Convex Array
Microconvex Array
Linear Array
Sector Array
Active Matrix Linear Array (1.5D)
Volume probes 4D: Convex Array & Microconvex Array
Standard features (may not be available in all countries)
Innovative user interface with high resolution 10.1" touch panel
B-Mode
M-Mode
PW-Doppler
CFM (Color Flow Doppler Mode)
HD-Flow & Power Doppler Mode
Tissue Doppler
B-Flow
Automatic Optimization (B-Mode, PW Doppler)
Auto TGC
Auto PRF
Coded Excitation (CE)
Focus and Frequency Composite (FFC)
Coded Harmonic Imaging with Pulse Inversion Technology, operating on multiple frequencies, user selectable on/off
Advanced Speckle Reduction Imaging (SRI II)
CrossXBeamCRI™ (Compound Resolution Imaging), (CRI)
XTD
SonoBiometry (HC, BPD, AC, FL, HL, CM, Vp, Cerebellum)
SonoFHR, Fetal Heart Rate
SonoNT & SonoIT
HD Zoom & Pan Zoom
Steering
Virtual Convex (Trapezoid Image, also with CrossXBeamCRI)
Wide Sector (max. Angle)
BetaView
Patient information database
Image Archive on hard drive
3D/4D data compression (lossy/lossless)
Real-time automatic Doppler calculations

Measurement, Calculations and Worksheets/Report for:
- OB - GYN - Abdominal - Transrectal - Vascular - Cardio - Small Parts - Cephalic - Pediatrics - Musculoskeletal
Multigestational Calculations
Integrated uplink for Cloud-based data storage (Tricefy™) (may not be available in all countries)
IOTA (International Ovarian Tumor Analysis): LR2, Simple Rules and ADNEX Model (may not be available in all countries)
IETA (International Endometrial Tumor Analysis) Report (may not be available in all countries)
IDEA (International Deep Endometriosis Analysis) Report (may not be available in all countries)
Report Editor
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
DICOM 3.0 Connectivity
Education Videos
3D Print File Export
Probe Check: On-board probe quality assessment tool

Software Options (may not be available in all countries)
<u>3D/4D Activation</u>
- Static 3D 4D Realtime - SonoRender<i>live</i>
<u>Advanced 3D/4D Package</u>
3D/4D Activation - TUI - Inversion - SingleView 4D Biopsy
HD <i>live</i>
Radiant <i>flow</i>
Advanced VCI with OmniView
VOCAL II
<u>SonoAVC</u>
- SonoAVC<i>follicle</i> - SonoAVC<i>Cantral</i>^{2.0} - SonoAVC<i>general</i>
Uterine Trace (incl. Advanced VCI with OmniView)
SonoVCAD <i>labor</i>
SonoL&D
SonoVCAD <i>heart</i>
SonoCNS
Spatio-temporal image correlation (STIC)
Anatomical M-Mode (AMM)
TUI
Inversion
4D Biopsy
Elastography
Coded Contrast Imaging + 3D HyCoSy ⁺
CW Mode
Integrated Software DVR
- Digital recording 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
Advanced Security Features
Russian Language Support

Hardware options (may not be available in all countries)
Drawer
CW Option Kit
Battery Pack
Integrated SSD 1 TB
ECG Digital Module

Peripheral options (may not be available in all countries)
Integrated printers:
- B&W Thermal Printer - Color Thermal Printer
External Color desktop printer with network printing capabilities & connection kits for printing reports and images
Foot Switch, with programmable functionality (USB)
Barcode Scanner (USB)

Connectivity options (may not be available in all countries)
WLAN Adapter (USB)
Integrated Video Converter (S-Video, Composite BNC)
External patient monitor
Digital Expert

Accessories
Isolation Transformer
Isolated USB Connection
Isolated Ethernet Connection
Power supply noise filter (EMI Filter)
Universal Power Supply 220/230V (UPS)
Voluson Cleaning Cloth

Display modes
Simultaneous capability in combination with SRI and/or CRI:
- B+PW - B+CFM, B+PD, B+TD - B+HD-Flow - B+M, B+AMM - B+3D, B+4D - B+CRI - B+SRI - B+CRI+SRI - B/Contrast⁺ - Contrast⁺+SRI - B+CRI/3D+CRI - B+SRI/3D+SRI - B+CRI/4D+CRI - B+SRI/4D+SRI - B+CRI+SRI/3D+CRI+SRI - B+CRI+SRI/4D+CRI+SRI - B+CRI/STIC+CRI - B+SRI/STIC+SRI - B+CRI+SRI/STIC+CRI+SRI - B/B+CRI - B/B+SRI - B/B+SRI+CRI - B/CFM+CRI - B/CFM+SRI - B/CFM+CRI+SRI - B/PD+CRI - B/PD+SRI - B/PD+CRI+SRI - B/HD-Flow+CRI - B/HD-Flow+SRI - B/HD-Flow+CRI+SRI - HD-Flow+CRI+SRI - BF+SRI

Real-time Triplex Mode (available on all probes):
- B/CFM/PW - B/PD/PW - B/HD-Flow/PW
Selectable alternating modes:
- B+PW or CW - B/CFM+PW or CW - B/PD+PW or CW - B/HD-Flow+PW or CW - B+CFM or PD or HD-Flow or CW

Multi-image (split, quad):
- Live and/or frozen - Independent Cine playback - Split: - B+B - B/CFM+B/CFM - B/PD+B/PD - B/TD+B/TD - B/HD-Flow + B/HD-Flow - B+PW or M or CW - BF+BF - Contrast+ Contrast - Frame Review/XTD-View - TUI Overview+1 slice - Split simultaneous: - B+B/CFM - B+B/PD - B+B/HD-Flow - Quad: - B+B+B+B or BF or Contrast⁺ - B/CFM+B/CFM+B/CFM+B/CFM or B/PD or B/TD or B/HD-Flow - Quad - Volume Mode: - A+B+C+3D or 4D - TUI: 1x1, 1x2, 2x2, 3x2, 3x3, 3x4, 4x4 - Segmentation: - Quad (A/B/C/ Segm. Object) - Single (Segm. Object)

Zoom Read/Write (with or without overview image)

Image Size:
- Standard - XL Format

Colorized Image:
- Colorized B - Colorized PW - Colorized M - Colorized 3D

Time line display:
- Independent Dual B/PW Display - Display Formats: Top/Bottom selectable format (Size 1/2:1/2; 1/3:2/3; 2/3:1/3)

Display annotation
Patient name: First/Middle/Last Name, max. 62 characters
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: (selectable): MM/DD/YYYY, DD/MM/YYYY, YYYY/MM/DD
Time display selectable: 12/24 hours
Probe name
Application name
Gray Scale bar
Depth Scale
Focal Zone Marker
Frame Rate
Zoom Start/Depth
B-Mode:
- User Preset - Receiver Frequency - Gain - Dynamic Control - Gray Map - Edge Enhance - Persistence - SRI, CRI - Probe Orientation
M-Mode/AMM –Mode:
- Gain - Dynamic control - Edge Enhance - Reject - M-Cursor, AMM-Cursor - Time Scale

PW Doppler Mode:

- Acoustic Power
- Gain
- Angle
- Wall Motion Filter
- Doppler Frequency
- Sample Volume Depth & Width
- Velocity or Frequency Scale
- Spectrum Inversion
- Time Scale
- PRF
- HPRF

Color Flow Imaging Modes:

- Acoustic Power
- Color Gain
- Color Balance
- Color Balance Marker
- Quality
- Wall Motion Filter
- PRF
- Color Map
- Color Scale: kHz, cm/s, m/s
- Power and Symmetrical Velocity Imaging
- Color Velocity Range
- Spectrum Inversion
- Orientation Markers

3D/4D Mode:

- 3D/4D Sub Program
- Threshold
- Quality
- Volume Box Angle
- Mix
- Acquisition Mode
- Compression
- Orientation Markers
- VCI: slice thickness
- TUI: slice distance (0.5-10mm)
- TUI: slice position in overview image
- SonoVCADheart
- STIC acquisition time
- Calculated STIC heart rate

Elastography Mode:

- Acoustic Output
- Tx Frequency
- Transparency
- Velocity Range
- Elasto Map
- Persistence
- Line Density

TGC Curve

Cine Frame Number

Recorder Status

Body Pattern: >110 types organized in 10 anatomical groups

Measurement results

Displayed Acoustic Output:

- TIS: Thermal Index Soft Tissue
- TIC: Thermal Index Cranial (Bone)
- TIB: Thermal Index Bone
- MI: Mechanical Index

Predefined Biopsy Guide Line

ECG Line

Trackball function (Trackball and Trackball buttons)

Zoom overview image (zoom box position)

GE logo

System Parameters

System setup

User Programmable Preset Capability, User program etc.

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

Keyboard Languages (Keycap Kits): English, French, German, Greek, Spanish, Portuguese, Italian, Danish, Finnish, Norwegian, Swedish, Russian, Swiss, South Slavic Latin

elfU (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 800 Programmable Annotations organized in 10 anatomical groups

6 programmable Px buttons (single press) for documentation preferences like Save, DICOM Send, Print, Check, Cine length, jpeg, etc.

6 programmable Px buttons (press and hold) for probe favorites - immediate access to frequently used probes, applications, and modes

Several user configurable functions:

- Clinic Name
- Display (TGC curve, Screen Lock, Screensaver, Auto Scan Stop, Beeper, 3D/4D Screen Controls)
- Trackball speed
- Zoom Overview window
- Dim function
- Patient Info display
- Title bar settings
- Start Exam and End Exam configuration

Image processing and presentation

Digital Beamformer

1,714,833 system processing channel technology

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

Maximum Depth of Field: 0 – 42 cm (probe dependent)

Depth Steps: up to 29 (probe dependent)

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

256 gray levels

16.8 million Colors 24 bit

Up to 265 dB Dynamic Range

Image reverse: Right/Left

Rotation: 0°, 180°

Measure setup

M&A Setup: 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

Magnifier available to help place precise measurements

Auto Sequence measurements

Biopsy setup	
User programmable needle guidelines	
Pre-processing	
Write Zoom up to 8x Magnification	
B/M-Mode:	
- Gain - TGC - Dynamic Range - Acoustic Output - Transmission Focus Position - Transmission Focus Number	- Transmission Frequency - Persistence Control - Line Density Control - Reject - Sweep Speed - M-Cursor position
PW-Mode:	
- Gain - Dynamic Range - Acoustic Output - Transmission Frequency - PRF	- Wall Motion Filter - Sample Volume Gate - Length, Depth, Pos - Velocity Scale - Sweep Speed
Color Flow Imaging Modes (CFM, PD, TD, HD-Flow):	
- Gain - Acoustic Output - PRF - Wall Motion Filter - Line density - Ensemble - Dynamic	- Smooth (Rise and Fall) - Frequency - Balance - Line Filter - Quality - Artifact Suppression
Post-processing	
Read Zoom: 0.8x – 3.4x Zoom (with HD-Zoom functionality up to 22x Zoom)	
B-Mode:	
2D Gain - Dynamic Contrast - Gray Map - Edge Enhance	- Colorized B - Advanced SRI II (Speckle Reduction Imaging)
M-Mode:	
- Gray Map - Colorized M - Edge Enhance	- Display Format - Sweep Speed
PW-Mode:	
- Gray Map - Baseline Shift - Angle Correction - Colorized D	- Scale (kHz, m/s, cm/s) - Trace - Invert - Sweep Speed
Color Flow Imaging Modes (CFM, PD, TD, HD-Flow):	
- Display Threshold - Display Mode (V,V-T,T,P, P-T) (CFM only)	- Color Map - Scale (CFM and HD-Flow) - Baseline
B-Flow:	
- Gray Map - Colorized B-Flow	- Dynamic Contrast - Advanced SRI II (Speckle Reduction Imaging)
Cine features	
Prospective or Retrospective Cine Mode	
Dual/Quad image CINE Display	
CINE Gauge and CINE image number display	
CINE Review Loop	
Selectable CINE Sequence for CINE Review (by Start Frame and End Frame)	
Side Change in dual CINE Mode	
Measurements/ Calculations & Annotations on CINE	

Length:

- 2D: 512MB: up to 10 min and 13,200 frames (depending on B-image size and FPS); typical: about 3 min/4000 images (with curved array: 15cm depth, angle 81°, 22 FPS)
- M-Mode: 32MB: up to 1 min motion time (depending on sweep and depth)
- PW/CW-Mode: 32MB: up to 1 min motion time (depending on sweep speed)

Cine operation:

- Manual: image by image
- Auto run:
 - speed: 25 to 200% of real-time rate
 - play repeat mode: forward-forward, forward-backward-forward

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 (approx. 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, JPEG
- 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, FullFrame

Export to:

- Network
- USB devices
- DVD+R(W)/ CD-R(W)
- email
- Printer
- DICOM
- Tricify

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

Backup function to:

- Network
- USB devices
- DVD+R(W)/ CD-R(W)

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. 450 GB

Connectivity

Ethernet network connection

WLAN network connection

3 USB 2.0 + 2 USB 3.0 ports for USB devices

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

Tricify features:

- Store
- Patient Share
- .pdf Report storage
- Query Retrieve

Scanning Parameters

B-Mode

B-Mode for all probes

B Acoustic Power	1-100%
Scan Angle	5° (probe dependent)
Gain range	+15 to -20 dB
Gray scale values	8 bit
SRI	5 steps (1-5)
CRI	8 steps (1-8)
CRI filter	4 steps: off, low, mid, high
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	18
Tint maps	10
Dynamic	12 Steps: 1-12
Display Modes	B, XTD
Max. B-Mode Frame Rate	>2800 frames/sec (probe dependent)
Frequency Range	1 to 18 MHz depending on the probe, adjustable in 3 fundamental steps (penetration, normal, resolution) and up to 4

Harmonic steps (penetration, low, mid, high)

Screen Formats:

- 2D Imaging: Single (B), Dual (B+B), Quad (B+B+B+B)
- XTD View: Single (XTD), Dual (B+XTD)

Coded Harmonic Imaging:

- available on all probes

Compound Resolution Imaging (CrossXBeamCRI):

- available on all probes, except: 3Sc-RS, 12S-RS

Advanced Speckle Reduction Imaging (SRI II):

- available on all probes

Virtual Convex:

- available on all Linear & Sector probes

Wide sector:

- available on all probes, except Linear probes

Coded Excitation (CE):

- available on following probes: 12L-RS, ML6-15-RS, RAB6-RS, RIC5-9A-RS, C2-9-RS

Focus Frequency Composite (FFC):

- available on all probes, except: 3Sc-RS, 12S-RS, 12L-RS, ML6-15-RS

HI Pen:

- available on C1-5-RS, RAB6-RS, C2-9-RS

Radiantflow:

- available on all probes, except: 3Sc-RS, 12S-RS, 12L-RS, 8C-RS

M-Mode

M-Mode for all probes

Working Modes	M (conventional M-Mode) AMM (Anatomical M-Mode)
Frequency Range	1 – 18 MHz (probe dependent, 3 steps high, mid, low)
Power control range	1-100%
M Gain range	+15 to -25 dB (1dB steps)

M sweep speeds:

- 900/450/300/225/150/100 pixels/sec
- 26.44/13.22/8.81/6.61/4.40/2.94 cm/s in relation to system monitor

Review (memory times)	>60s (32MB)
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Signal processing M:

- Dynamic range: 1 to 12
- Reject: 0 to 255
- Enhance: 0 to 5
- Gray maps: 18
- Tint maps: 10

Display Modes:

- M
- 2D+M
- 2D+M/CFM
- 2D+M/HD-Flow
- 2D+M/PD
- 2D+M/TD
- AMM
- 2D+AMM
- 2D/CFM+AMM/CFM
- 2D/HD-Flow+AMM/HD-Flow
- 2D/TD+AMM/TD

Screen Formats: (window arrangement)

- 2D+M and 2D+AMM:
 - up/down (horizontal): three different sub formats 40/60, 50/50, 60/40%
 - left/right (vertical): 50/50%
- 2D+AMM+AMM:
 - left/right-up/right-down: 50/25/25%

M-Color Flow Mode

M-Color Flow Mode for all probes, except Linear probes

Acoustic MCFM Power	1-100%
Frequency Range	1 – 18 MHz (probe dependent, 3 steps high, mid, low)

MCFM Color Maps	8 maps
CFM Gain	±15 dB range (0.1 dB steps)
CFM Velocity Scale Range	PRF: 100Hz to 18kHz
Wall Motion Filter	8 – 3000 Hz
Ensemble (color shots per line)	8-16, step size 1
Gentle color filter	
Smooth filter	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

Spectral Doppler Mode (PW, CW)

Pulsed Wave Doppler Mode for all probes	
Continuous Wave Doppler Mode only for 3Sc-RS, 12S-RS	
Operating Modes	PW (Pulsed Wave Doppler, Single Gate), Steerable CW (Continuous Wave Doppler)
Transmit Frequencies	PW-Doppler: 1.75-18 MHz CW-Doppler: 1.75-16 MHz
Pulse Repetition Frequency (PRF)	PW-Doppler: 0.9-22 kHz CW-Doppler: 1.3-41.7 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	+15 to -25 dB (PW) +15 to -15 dB (CW)
WMF (wall motion filter)	PW: 30...500 Hz, CW: 30...1000 Hz
Baseline shift	± PRF/2, ± 8 steps
Spectrum Analyzer	FFT (Fast Fourier Transformation), max. 256 channels, 256 amplitude levels
PW sweep speeds	Simplex: 26.44/13.22/8.81/6.61/4.40/2.94 cm/s Duplex/ Triplex: 8.81/6.61/4.40/2.94 cm/s
Review (memory times)	>60s (32MB)
Measurable flow velocities:	
• PW: 1cm/s – 8m/s (a=0°, 2.0MHz, max. Baseline shift) 1cm/s – 16m/s (a=60°, 2.0MHz, max. Baseline shift) • CW: 1cm/s – 15.4m/s (a=0°, 2.0MHz, max. Baseline shift) 1cm/s-30.80m/s (a=60°, 2.0MHz, max. Baseline shift)	
Signal processing:	
• Dynamic range: 15 steps (10 to 40) • Gray maps: 18 basic curves • Tint maps: 11	
Scale Display	
• Vertical: kHz, cm/s, m/s (selectable) • Horizontal: 1s marker (big), ½ s marker (small)	

Screen Formats

- 2D/D:
 - up/down (horizontal): three different sub formats 40/60, 50/50, 60/40%
 - left/right (vertical): 50/50%

Display Formats

- 2D/D (duplex update)
- 2D+CFM/D, 2D+HD-Flow/D, 2D+PD/D (triplex update, CW or PW)
- 2D+CFM/PW, 2D+PD/PW, 2D+HDFlow/PW (triplex simultaneous, PW only)

Audio Modes

- Stereo (both directions separately in both channels)

Audio Volume

- Adjustable

Color Doppler Mode

Color Doppler Mode for all probes

Screen Formats	2D+CFM (Single, Dual, Quad)
Frequency Range	1 – 16 MHz (probe dependent, 3 steps high, mid, low)

Display Modes:

- Simultaneous dual mode: 2D/2D+CFM
- Triplex mode: 2D+CFM/PW, 2D/M+MCFM
- Volume Mode: 3D+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)

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	8 steps (low1, low2, mid1, mid2, high1, high2, max1, max2)
Smooth filter	Rise: 12 steps Fall: 12 steps
Gain Control	+15 dB to -15 dB (0.2 dB steps)
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)
Pulse repetition frequency	CFM: 100 Hz to 20.5 kHz MCFM: 100 Hz to 20.5 kHz
Color Map	8 different color codes for each probe
Balance	From 25 to 225
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)	
Power Doppler Mode for all probes	
Screen Formats	2D+PD (Single, Dual, Quad)
Frequency range	1 – 16 MHz (probe dependent, 3 steps high, mid, low)
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-scan angle; Axial: B-scan range
Display mode	P (power)
Wall motion Filter	8 steps (low1, low2, mid1, mid2, high1, high2, max1, max2)
Smooth filter	Rise: 12 steps Fall: 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	100 Hz to 20.5 kHz
PD Map	8 different color codes for each probe
Flow Resolution	4 steps (low, mid1, mid2, high)
Balance	From 25 to 225 in 41 steps
Artifact suppression	Yes

HD-Flow	
HD-Flow Mode for all probes	
Screen Formats	2D+HDF (Single, Dual, Quad)
Frequency range	1 – 16 MHz (probe dependent, 3 steps high, mid, low)
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	Lateral: maximum to minimum B-scan angle; Axial: B-scan range
Wall Motion Filter	8 steps (low1, low2, mid1, mid2, high1, high2, max1, max2)
Smooth filter	Rise: 12 steps Fall: 12 steps
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	100 Hz to 20.5 kHz
HD-Flow Map	8 different color codes for each probe
Flow Resolution	4 steps (low, mid1, mid2, high)
Balance	From 25 to 225
Artifact suppression	Yes

Tissue Doppler Mode (TD)	
Tissue Doppler Mode for all probes, except Linear probes & 8C-RS	
Screen Formats	2D+TD (Single, Dual, Quad)
Frequency range	1 – 16 MHz (probe dependent, 3 steps high, mid, low)
Display Modes:	
• Simultaneous dual mode: 2D/2D+TD • Triplex mode: 2D+TD/PW; 2D/M+MTD	
TD Coding Steps	65536 color steps
TD window size lateral	Lateral: 0 to B-scan range; Axial: 0 to B-scan range
Zero line shift	17 steps
Inversion of color direction	yes
Smooth filter	Rise: 12 steps Fall: 12 steps
Gain Control	+15 dB to -15 dB (0.2 dB steps)
TD Ensemble	3 to 31
TD Line Density	10 steps
Pulse repetition frequency	100 Hz to 20.5 kHz
TD Map	4 different color codes for each probe
Flow Resolution	4 steps (low, mid1, mid2, 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

Volume Scan Module	
Volume 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)	
VOL-Frames/sec.: max. 46 (typ. 4-8); The frame rate depends on scan parameters: VOL-box size, quality and probe	
4D Volume Cine: up to 400 volumes, up to 512 MB	
Display of sectional plane images: synchronous with control seeing, arbitrary movement in volume, monitored position in volume	
Rotation: 360°, 1° or 3° increments (X-, Y- and Z-axis)	
Magnification. Adjustable from 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/HD-Flow (incl. CRI) • 3D/B-Flow • 3D Contrast[†] (Coded PI, CCIS) • 4D • Real-Time 4D • 4D-Biopsy • VCI-A • VCI-OmniView • 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	

Visualization Modes:

- Render
 - 3D/4D Rendering (diverse surface and intensity projection modes)
 - SonoRenderlive
- Sectional Planes
 - Multiplanar
 - OmniView, actual and projected view
 - Niche
 - SonoVCADlabor
- TUI (Tomographic Ultrasound Imaging) (overview image+parallel slices)
 - TUI Standard
 - SonoVCADheart
- Free movable light source around 3D objects
 - 3D Rendered Image
 - VOCAL object
 - SonoAVC object

Volume Analysis

- VOCAL: semi-auto/ manual segmentation tool using touch screen, 3D Static only + Threshold Volume
- SonoAVC*follicle* (Sono Automated Volume Count)
- SonoAVC*antra*^{2.0}
- SonoAVC*generic*
- VCI (Volume Contrast Imaging)

Render Modes:

- HDlive
- Color
- Surface Enhanced
- Mix Mode of two render modes
- Surface Texture
- Surface Smooth
- Transparency modes:
 - max-min- and X-ray
 - Gradient Light
 - Light
 - Inversion
 - Glass Body

Display graphics:

- Rotation axis, center point
- ROI box, 3D Frame
- Temporary display of onscreen controls (rotation, translation)

Gray maps:

- Slices: 21 (18 + 3 user defined)
- 3D Image: one general map adjustable with brightness (-50 to +50) & contrast (-50 to +50))

Tint maps:

- Slices: 10
- 3D image: 10

Depth render maps: 3

BF (B-Flow)

B-Flow for all probes, except: 3Sc-RS, 12S-RS

Screen Formats	Single (BF), Dual (BF+BF), Quad (BF+BF+BF+BF)
Display Modes	BF, Update: BF/PW
Power control 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	1.0, 1.5, 2.0, 3.0, 4.0, ..., 15.0
Quality	3 steps (pre) low, norm, high
Enhance	6 steps (pre) 0, 1, 2, 3, 4, 5
Gray maps	18
Tint maps	10

Dynamic	12 Steps: 1-12
Accumulation	Off, 0.05, 0.10, 0.20, 0.40, 0.60, 0.80, Infinite
Background	0, 1, 2

Contrast Imaging⁺ (not available in all countries)

Probes:

- C1-5-RS
- RIC5-9A-RS
- 3Sc-RS
- 9L-RS
- ML6-15-RS
- 4C-RS

Screen Formats:

- Code PI: Single (B), Dual (B+B), Quad (B+B+B+B)
- CIS: Dual simultan (2D+Coded PI)
- CCIS: Single (B), Dual (B+B), Quad (B+B+B+B)

Low MI Contrast Capabilities

Power control 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,...15.00
Quality	3 steps (pre) low, norm, high
Enhance	6 steps (pre) 0, 1, 2, 3, 4, 5
Gray maps	18
Tint maps	10
Dynamic	12 Steps: 1-12
Accumulation	Off, 0.20, 0.35, 0.50, 0.75, 1.00, 1.50, Infinite
Background	0, 1, 2
Time Delay	0, 0.5, 1, 2, 3, ...10
Display Modes:	• Coded PI • Coded PI: CIS • Coded PI: CCIS

Elastography	
Probes:	12L-RS - ML6-15-RS - RIC5-9A-RS - IC9-RS - IC9B-RS
Screen Formats	- Single (2D/Elasto) - Dual (2D/Elasto+2D/Elasto) - Quad (2D/Elasto + 2D/Elasto + 2D/Elasto + 2D/Elasto)
Acoustic Power Range	1 – 100%
Tx Frequency	3 (penet/norm/resol)
Transparency	51 steps 90, 5, 10, ... , 255
Soft compress:	- Range: 0 - 9 - Step Size: 1
Hard compress:	- Range: 0 - 9 - Step Size: 1
PRF	10, 15, 25, 40, 60, 85 Hz
Elasto Maps	8
Persistence:	- Range: 1- 9 - Step Size: 1
Line Density:	Range: 1 - 2
Filter Axial	- Range: 1 - 9 - Step Size: 1
Filter Lateral:	- Range: 1 - 21 - Step Size: 2
Window Length:	- Range: 8 - 25 - Step Size: 1
Elastography Analysis	
Elastography Ratio Measurements	

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	
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) - TAmx - HR - PI (Pulsatility Index) - RI (Resistance Index) - Vol. Flow - PGmax, PGmean - TAmx (Time avg. max. Velocity) - TAmx (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	- PS/ED - RI - PI	- 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	
Fetal Weight (FW) Estimation	
Fetal Trend Graph	
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	
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	Obl. Short axis
Aortic Arch	4 Chambers
Short Axis	Summary Reports
Thorax	

Gynecology calculations
Uterus
Left/Right Ovary
Left/Right Follicle
Fibroid
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)
FHR
IOTA LR2, Simple Rules and ADNEX Model. (may not be available in all countries)
IETA unenhanced ultrasound examination and enhanced ultrasound examination – Sonohysterography. (may not be available in all countries)
IDEA Protocol (may not be available in all countries)
Uterus classification (ESHRE/ESGE and ASRM)
Summary Reports

Cardiology calculations
2D Mode:
• LV Simpson (Single) • LA Simpson (Single); RA Simpson • 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) • LA/Ao; Ao/LA • AoAsc (Diameter) • PEd (Pericardial Effusion Diameter) • SVI (Stroke Volume Index: SV/BSA) • COI (Cardiac Output Index: CO/BSA) • AVAI (AV Area Index: AVArea/BSA)
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 • TAPSE
PW-Mode:
• MV (Mitral Valve) • E' as E' sept or E' lat. for MV • E/e' • dp/dt for MV & TV • 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

CW-Mode:

- PISA

Others:

- | | |
|--|--|
| <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • Mean Gradient • Mean Gradient Acceleration • VTI • TVA • PG • PHT • MVA • AVA • ERO • CVP (Cardio Vascular Profile) Score |
|--|--|

Summary Reports

Vascular calculations

2D/ M-Mode/ PW-Mode:

Carotid

- 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

UEA

- Innom. Artery
- Subclav. Artery
- Axill. Artery
- Brach. Artery
- Rad. Artery
- Ulnar. Artery
- SupPalm. Artery
- DeepPalm. Artery
- Graft

UEV

- Innom. Vein
- Subclav. Vein
- Jugular. Vein
- Axill. Vein
- Ceph. Vein
- Ceph. Vein
- Basilic Vein
- Brach. Vein
- Med. Cub. Vein
- Rad. Vein
- Ulnar Vein

Renal Artery

- Renal Artery
- Renal Vein
- Segm. Artery
- Interlob. Artery
- Arcuate Artery

LEA

- Com. Iliac Artery
- Ext. Iliac Artery
- Int. Iliac Artery
- Cim. Fem. Artery
- Prof. Fem. Artery
- Sup. Fem. Artery
- Popl. Artery

- Ant. Tib. Artery
- Post. Tib. Artery
- Peron. Artery
- Dors. Ped. Artery
- Graft

LEV

- IVC
- Com. Iliac Vein
- Ext. Iliac Vein
- Int. Iliac Vein
- Gr. Saph. Vein
- Popl. Vein
- Com. Fem. Vein
- Sup. Fem. Vein
- Prof. Fem. Vein
- Low Saph. Vein
- Ant. Tib. Vein
- Post. Tib. Vein

TCD

- MCA
- ACA
- PCA
- A com. Artery
- P com. Artery
- Vertebral
- Basilaris
- Summary Reports

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

Pediatric calculations

Left/Right Hip Joint

Pericallosal Artery

Summary Report

Transrectal calculations

Prostate

Vessel

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

OB Tables

Age Tables

- AC: ASUM, BMUS, CFEF, CFEF 2006, Chitty, Hadlock_82, Hadlock_84, Hansmann, Hobbins, Jeanty, JSUM, Kurmanavicius, Leung, Merz, Nicolaides, Shinozuka, Siriraj, Tokyo
- AD: Persson
- APAD: Merz
- APTD: Hansmann
- APTDxTTD: Shinozuka, Tokyo
- BOD: Jeanty
- BPD: ASUM, ASUM (old), Campbell, CFEF, CFEF 2006, 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, Nelson, OSAKA, Persson, Pexters, Rempen, Robinson, Robinson_BMUS, Sahota, Shinozuka, Tokyo, Verburg
- FL: ASUM, CFEF, CFEF 2006, Chitty, Eik-Nes, Hadlock_82, Hadlock_84, Hansmann, Hobbins, Hohler, Jeanty, Johnsen, JSUM, Kurmanavicius, Leung, Merz, Nicolaides, O'Brien, OSAKA, Persson, Shinozuka, Siriraj, Tokyo, UltraARG, WARDA,
- FTA: OSAKA
- FTA (rectangle) AxT: Shinozuka, Tokyo
- FIB: Jeanty
- GS: Hansmann, Hellman, Holländer, Nyberg, Rempen, Tokyo
- HC: ASUM, BMUS, CFEF, CFEF 2006, Chitty, Hadlock_82, Hadlock_84, Hansmann, Jeanty, Johnsen, Kurmanavicius, Leung, Merz, Nicolaides, Siriraj, Verburg
- 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_84, Hansmann, Jacot-Guillarmod, Intergrowth, Jeanty, Johnsen, JSUM, Lai_Yeo, Kurmanavicius, Lessoway, Leung, Merz, Medvedev, Medvedev_2014, Nicolaides, Paladini, Shinozuka, Siriraj, STORK dichorionic, STORK monochorionic, Tokyo, Verburg, WHO
- AD: Persson
- AFI: Moore
- Aorta: Vmax: Rizzo
- APAD: Merz
- APTD: Hansmann
- AxT: Shinozuka (APTDxTTD), Tokyo
- AVol: Lee
- BOD: Jeanty
- BPD: ASUM, Campbell, CFEF, Chitty (outer-outer), Eik-Nes, Hadlock_84, Hansmann, Intergrowth, Jacot-Guillarmod, Jeanty, JSUM, Kurmanavicius, Lai_Yeo, Lessoway, Leung, Persson, Medvedev, Medvedev_2014, McLennan, Merz, Nicolaides, OSAKA, Paladini, Sabbagha, Shinozuka, Siriraj, STORK dichorionic, STORK monochorionic, Tokyo, Verburg, WHO
- CLAV: YARKONI
- CM: Nicolaides

- CRL: ASUM, Hadlock, Hansmann, Intergrowth, JSUM, McLennan, Medvev, OSAKA, Persson, Pexters, Robinson, Robinson_BMUS, Shinozuka, Tokyo
- DV a/S: JSUM
- DV Pl: Baschat, JSUM
- DV PLI: Baschat
- DV PVIV: Baschat
- DV S/a: Baschat
- FL: ASUM, CFEF, Chitty, Eik-Nes, Hadlock_84, Hansmann, Intergrowth, Jacot-Guillarmod, Jeanty, Johnsen, JSUM, Kurmanavicius, Lessoway, Lai_Yeo, Lessoway, Leung, Medvedev, Medvedev_2014, Merz, Nicolaides, O'Brien, OSAKA, Paladini, Persson, Shinozuka, Siriraj, STORK dichorionic, STORK monochorionic, Tokyo, Verburg, WARDA, WHO
- FTA: OSAKA
- FIB: Chitty, Jeanty, JFFSD, Siriraj
- Foot: Chitty
- GS: Hellman, Nyberg, Rempen, Tokyo
- HC: ASUM, CFEF, Chervernak, Chitty, Hadlock_84, Hansmann, Intergrowth, Jacot-Guillarmod, Jeanty, Johnsen, Kurmanavicius, Lai_Yeo, Lessoway, Leung, Medvedev, Medvedev_2014, Merz, Nicolaides, Paladini, Siriraj, STORK dichorionic, STORK monochorionic, Verburg, WHO
- HL: ASUM, Chitty, Jeanty, JFFSD, Lai_Yeo, Merz, Medvedev, Medvedev_2014, OSAKA, Paladini, Siriraj, WHO
- IVC PLI: JSUM
- Lt.Tei(ICT,IRT), Lt.Tei(a,b): Bhorat
- Lung Area Left/Right: Peralta
- LV: Tokyo
- MCA CP: Ebbing
- MCA Pl: Bahlmann, Ebbing, JSUM
- MCA RI: Bahlmann, JSUM
- MCA PS: Mari
- MAD: Eik-Nes, eSnurra, Kurmanavicius
- MV E/A: HARADA
- NBL: BUNDUKI, Medvedev, Orlandi, SONEK
- NT: Nicolaides
- OFD: ASUM, Chitty, Hansmann, Intergrowth, Jeanty, Kurmanavicius, Medvedev, Medvedev_2014, Merz, Nicolaides
- MainPA Vmax: Rizzo
- RAD: Chitty, Jeanty, JFFSD, Merz, Paladini, Siriraj
- SAG. AP: Malinge
- SAG. CC: Malinge
- TAD: CFEF, Jacot-Guillarmod, Merz
- TC: Chitkara
- TCD: Goldstein, Hill, Jacot-Guillarmod, Nicolaides, Verburg
- TIB: Chitty, Jeanty, JFFSD, Merz, Paladini, Siriraj
- TTD: Hansmann
- TV E/A: HARADA
- TVol: Lee
- ULNA. Chitty, Jeanty, JFFSD, Merz, Paladini, Siriraj
- UmbArt Pl: Ebbing, JSUM, Merz
- UmbArt RI: JSUM, Merz, Kurmanavicius
- UtArtPl: Gomez, Merz
- UtArtRI: Merz
- Vermis A: Malinge
- Vermis C: Malinge

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 1 (BPD, MAD, FL) • Persson 2, Schild (HC, AC, FL) • 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, Burgundy (m, f), CFEF, Doubilet, Duryea, Duryea (m, f), Ego, Ego (m, f), Eik-Nes, Hadlock, Hansmann, Hansmann_86, Hobbins/Persutte, Intergrowth, Johnsen(m, f), JSUM, Kramer (m, f), Osaka, Persson_96, Persson_98, Shinozuka, Tokyo, Williams, WHO, Yarkoni
Fetal Ratios
CI (BPD/OFD) (Hadlock)
FL/AC (Hadlock)
FL/BPD (Hohler)
FL/HC (Hadlock), (WHO)
HC/AC (Campbell)
LTR (Lung Area/ Thorax Area) (Hasegawa)
Va/Hem (Hansmann, Nicolaides)
Vp/Hem (Nicolaides)
LHR (Peralta)
CVR (Peranteau)

Probes (some probes may not be available in all countries)

C1-5-RS	
Wide Band Convex Probe	
Applications	Abdomen, Obstetrics, Gynecology
Max. Bandwidth (-20dB)	2 – 5MHz
Number of Elements	192
Convex Radius	56.1 mm
Volume Sweep Radius	n/a
FOV	70°
FOV (max)	114°
Foot Print	69.3 x 17.2 mm
Depth	Max. 42 cm
Center Frequency	3.4 MHz
B-Mode Frequency	2.78 – 3.70 MHz
Doppler Frequency	2.00 - 3.23 MHz
Harmonic Frequency	2.00 - 2.13 MHz
Biopsy Guide Available	Multi-Angle, disposable with reusable bracket

4C-RS	
Wide Band Convex Probe	
Applications	Abdomen, Obstetrics, Gynecology
Max. Bandwidth (-20dB)	2 – 5MHz
Number of Elements	128
Convex Radius	60.0 mm
Volume Sweep Radius	n/a
FOV	58°
FOV (max)	81°
Foot Print	68.7 x 18.3 mm
Depth	Max. 42 cm
Center Frequency	3.1 MHz
B-Mode Frequency	2.50 - 3.70 MHz
Doppler Frequency	2.00 - 3.23 MHz
Harmonic Frequency	2.00 - 2.08 MHz
Biopsy Guide Available	Multi-Angle, disposable with reusable bracket

C2-9-RS (may not be available in all countries)	
Wide Band Convex Probe	
Applications	Abdomen, Obstetrics, Gynecology, Pediatrics
Max. Bandwidth (-20dB)	2.5 – 9.1 MHz
Number of Elements	192
Convex Radius	43.0 mm
Volume Sweep Radius	n/a
FOV	64°
FOV (max)	94°
Foot Print	51.0 x 14.0 mm
Depth	Max. 26 cm
Center Frequency	5 MHz
B-Mode Frequency	4.00 - 7.14 MHz
Doppler Frequency	3.03 - 5.00 MHz
Harmonic Frequency	2.63 - 3.57 MHz
Biopsy Guide Available	Multi-Angle, disposable with reusable bracket

IC9-RS	
Wide Band Micro-Convex Probe	
Applications	Obstetrics, Gynecology, Transrectal
Max. Bandwidth (-20dB)	2.9 – 9.7MHz
Number of Elements	192
Convex Radius	9.2 mm
Volume Sweep Radius	n/a
FOV	150°
FOV (max)	185°
Foot Print	19.6 x 13.6 mm
Depth	Max. 16 cm
Center Frequency	6.25 MHz
B-Mode Frequency	4.55 - 8.33 MHz
Doppler Frequency	5.00 - 6.25 MHz
Harmonic Frequency	3.57 - 3.57 MHz
Biopsy Guide Available	Single-Angle, reusable; disposable biopsy guide

IC9B-RS	
Wide Band Micro-Convex Probe	
Applications	Obstetrics, Gynecology, Transrectal
Max. Bandwidth (-20dB)	2.9 – 9.7MHz
Number of Elements	192
Convex Radius	9.2 mm
Volume Sweep Radius	n/a
FOV	150°
FOV (max)	185°
Foot Print	19.6 x 13.6 mm
Depth	Max. 16 cm
Center Frequency	6.25 MHz
B-Mode Frequency	4.55 - 8.33 MHz
Doppler Frequency	5.00 - 6.25 MHz
Harmonic Frequency	3.57 - 3.57 MHz
Biopsy Guide Available	Single-Angle, reusable; disposable biopsy guide

8C-RS	
Wideband Micro-Convex Probe	
Applications	Abdominal, Small Parts, Cardiology, Peripheral Vascular, Pediatrics
Max. Bandwidth (-20dB)	4 - 10 MHz
Number of Elements	128
Convex Radius	11.4 mm
Volume Sweep Radius	N/A
FOV	80°
FOV max)	131°
Foot Print	22.0 x 12.0 mm
Depth	Max. 16 cm
Center Frequency	6.5MHz
B-Mode Frequency	4.35 - 7.14 MHz
Doppler Frequency	4.76 - 6.67 MHz
Harmonic Frequency	4.17 - 4.17 MHz
Biopsy Guide Available	n/a

12L-RS	
Wide Band Linear Probe	
Applications	Small Parts, Pediatrics, MSK, Vascular, Breast
Max. Bandwidth (-20dB)	4 – 12 MHz
Number of Elements	192
Volume Sweep Radius	n/a
FOV	38.4 mm
Foot Print	47.2 x 13.8 mm
Depth	Max. 11 cm
Color Doppler Steering Angle	7°/14°/20°
Center Frequency	7.7 MHz
B-Mode Frequency	6.67 - 10.00 MHz
Doppler Frequency	5.26 - 7.14 MHz
Harmonic Frequency	4.55 - 5.00 MHz
Biopsy Guide Available	Multi-Angle, disposable with reusable bracket

9L-RS	
Wide Band Linear Probe	
Applications	Small Parts, Obstetrics, Peripheral Vascular, Pediatrics, MSK
Max. Bandwidth (-20dB)	3-8 MHz
Number of Elements	192
Volume Sweep Radius	n/a
FOV	44 mm
Foot Print	53.0 x 14.1mm
Depth	Max. 14 cm
Color Doppler Steering Angle	7°/14°/20°
Center Frequency	5.3 MHz
B-Mode Frequency	4.55 - 10.00 MHz
Doppler Frequency	3.70 - 5.26 MHz
Harmonic Frequency	2.86 - 2.86 MHz
Biopsy Guide Available	Multi-Angle, disposable with reusable bracket

ML6-15-RS	
Wideband Matrix Linear Probe	
Applications	Small Parts, Peripheral Vascular, Pediatrics, MSK, Breast
Max. Bandwidth (-20dB)	4-13 MHz
Number of Elements	1008
Volume Sweep Radius	n/a
FOV	50 mm
Foot Print	60.7 x16.0 mm
Depth	Max. 16 cm
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
Biopsy Guide Available	Multi-Angle, disposable with reusable bracket

12S-RS	
Wideband Phased Array Probe	
Applications	Small Parts, Cardiology, Pediatrics
Max. Bandwidth (-20dB)	4-12 MHz
Number of Elements	96
Volume Sweep Radius	n/a
FOV	90°
Foot Print	21.0 x 14.5mm
Depth	Max. 13.7 cm
Center Frequency	8 MHz
B-Mode Frequency	5.88 - 9.09 MHz
Doppler Frequency	5.00 - 6.67 MHz
Harmonic Frequency	4.76 - 5.00 MHz
Biopsy Guide Available	n/a

3Sc-RS	
Wide Band Phased Array Probe	
Applications	Abdominal, Cardiology, Obstetrics, Pediatrics, Cephalic
Max. Bandwidth (-20dB)	1 – 4 MHz
Number of Elements	64
Volume Sweep Radius	n/a
FOV	90°
Foot Print	27.6 X 19.3 mm
Depth	Max. 23.7 cm
Center Frequency	2.8 MHz
B-Mode Frequency	2.44 - 3.33 MHz
Doppler Frequency	1.85 - 2.50 MHz
Harmonic Frequency	1.92 - 1.96 MHz
Biopsy Guide Available	Multi-Angle, disposable with reusable bracket

RAB6-RS	
Wide Band Convex Volume Probe	
Applications	Abdomen, Obstetrics, Gynecology, Pediatrics
Max. Bandwidth (-20dB)	2 – 8 MHz
Number of Elements	192
Convex Radius	47.0 mm
Volume Sweep Radius	24.11 mm
FOV	B-Mode: 63° Volume scan: 85° x 63°
FOV (max)	B-Mode: 90° Volume scan: 85° x 90°
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	2.56 – 3.33 MHz
Biopsy Guide Available	Multi-Angle, disposable with reusable bracket

RIC5-9A-RS	
Wide Band Micro-Convex Volume Probe	
Applications	Obstetrics, Gynecology, Transrectal
Max. Bandwidth (-20dB)	3.8 - 9.3 MHz
Number of Elements	192
Convex Radius	10.0 mm
Volume Sweep Radius	11.7 mm
FOV	B-Mode: 150° Volume scan: 120° x 150°
FOV (max)	B-Mode: 184° Volume scan: 120° x 184°
Foot Print	26.2 x 27.8 mm
Depth	Max. 16 cm
Center Frequency	6.5 MHz
B-Mode Frequency	4.55 - 8.33 MHz
Doppler Frequency	4.55 - 6.25 MHz
Harmonic Frequency	3.57 - 3.85 MHz
Biopsy Guide Available	PEC 63, Single-Angle, reusable; disposable biopsy guide

Connectivity

External Inputs and Outputs

External Connectivity

- HDMI
- VGA port
- S-Video (integrated video converter option)
- Composite BNC (integrated video converter option)
- Network (RJ45)
- USB 2.0 (2x in monitor, 1x in rear)
- USB 3.0 (2x in front)
- External Audio Out
- AC Power Input
- Probe connector

Service Tools

OnWatch system monitoring and proactive diagnostics
InSite™ Remote diagnostic support

Safety Conformance

The Voluson S10 BT22 is:

- Including national deviations
- 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 Regulation (EU) 2017/745 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 Medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance - Collateral Standard: Electromagnetic disturbances - 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/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/ISO15223-1 Medical devices - Symbols to be used with medical device labels, labelling and information to be supplied - Part 1: General requirements
 - ISO 10993-1 Biological evaluation of medical devices – Part 1 Evaluation and testing
 - ISO14971 Medical devices - Application of risk management to medical devices
- EMC Emissions Group 1, Class B device requirements as per Sub clause 5 of CISPR 11
- WEEE (Waste Electrical and Electronic Equipment)
- ROHS according to 2011/65/EU
- 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)

Europe GE Healthcare

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APAC GE Healthcare Asia Pacific

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Hino-shi, Tokyo 191-8503
Japan

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GE Medical Systems Ultrasound & Primary Care Diagnostics, LLC, a General Electric company, doing business as GE Healthcare.

DOC2624071



ATTESTATION CE / EC CERTIFICATE

Approbation du Système Complet d'assurance Qualité / Approval of full Quality Assurance System

ANNEXE II excluant le point 4 Directive 93/42/CEE relative aux dispositifs médicaux

ANNEX II excluding section 4 Directive 93/42/EEC concerning medical devices

Pour les dispositifs de classe III, un certificat CE de conception est requis

For class III devices, a EC design certificate is required

Fabricant / Manufacturer

GE ULTRASOUND KOREA, Ltd.

9, Sunhwan-ro 214beon-gil, Jungwon-gu,

SEONGNAM-SI, GYEONGGI-DO, REPUBLIC OF KOREA

Catégorie du(des) dispositif(s) / Device(s) category

Dispositif ou système de diagnostic par ultrasons

Ultrasound diagnostic device or system

Voir document complémentaire GMED / See GMED additional document

n° 36988

GMED atteste qu'à l'examen des résultats figurant dans le rapport référencé P183396, P601203, le système d'assurance qualité - pour la conception, la production et le contrôle final - des dispositifs médicaux énumérés ci-dessus est conforme aux exigences de l'annexe II excluant le point 4 de la Directive 93/42/CEE.

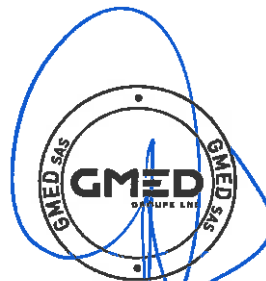
GMED certifies that, on the basis of the results contained in the file referenced P183396, P601203, the quality system - for design, manufacturing, and final inspection - of medical devices listed here above complies with the requirements of the Directive 93/42/EEC, annex II excluding section 4.

La validité du présent certificat est soumise à une vérification périodique ou imprévue

The validity of the certificate is subject to periodic or unexpected verification

Début de validité / Effective date : September 14th, 2020 (included)

Valable jusqu'au / Expiry date : May 26th, 2024 (included)



Lionel DREUX
Certification Director

Ce document complémentaire GMED n° 36988 rev. 0 atteste de la validité du certificat CE n° 7697 rev. 18 au regard des informations listées ci-dessous.

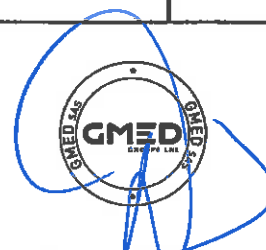
This GMED additional document N° 36988 rev. 0 attests to the validity of CE certificate n° 7697 rev. 18 with regard to the information listed below.

Fabricant / Manufacturer:

GE ULTRASOUND KOREA, Ltd.
9, Sunhwan-ro 214beon-gil, Jungwon-gu,
SEONGNAM-SI, GYEONGGI-DO, REPUBLIC OF KOREA

Identification des dispositifs / Identification of devices

Désignation du dispositif / Accessoires marqués CE <i>Device designation / CE marked accessories</i>	Réf commerciale du dispositif ou code article <i>Device commercial reference or article code</i>	Classe du DM MD class
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	LOGIQ P7	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	LOGIQ P8	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	LOGIQ P9	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	LOGIQ P10	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	VOLUSON S6	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	VOLUSON S8	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	VOLUSON S8t	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	VOLUSON S10	Ila



Lionel DREUX
Certification Director

Désignation du dispositif / Accessoires marqués CE <i>Device designation / CE marked accessories</i>	Réf commerciale du dispositif ou code article <i>Device commercial reference or article code</i>	Classe du DM MD class
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	VOLUSON S10 Expert	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	VOLUSON P6	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	VOLUSON P8	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	VOLUSON SWIFT	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	VOLUSON SWIFT+	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	LOGIQ S8	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	LOGIQ S7 Expert	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	LOGIQ S7 Pro	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	LOGIQ S7 XDclear2.0	Ila
Dispositif ou système de diagnostic par ultrasons <i>Ultrasound diagnostic device or system</i>	LOGIQ E10s	Ila

Site couvert et Activités / Locations and Activities

Site / Location	Activités / Activities
GE ULTRASOUND KOREA, Ltd. 9, Sunhwan-ro 214beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do, REPUBLIC OF KOREA équivalent à equivalent to GE ULTRASOUND KOREA, Ltd. 65-1, Sangdaewon-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do - 462-120 REPUBLIC OF KOREA	Conception, fabrication et contrôle final Design, manufacture and final control



Lionel DREUX

Certification Director

GMED - 36988 rev. 0

GMED • Société par Actions Simplifiée au capital de 300 000 € • RCS Paris 839 022 522 • Organisme notifié n° 0459
Siège social : 1, rue Gaston Boissier - 75015 Paris • Tél. : 01 40 43 37 00 • gmed.fr

720 GMED 0901-4 rev 0 du 31/08/2020



EU DECLARATION OF CONFORMITY

Following the provisions of the medical devices regulation 2017/745, directive 2011/65/EU and directive 2014/53/EU.

We:

Manufacturer	EU Authorized Representative
GE Ultrasound Korea, Ltd. 9, Sunhwan-ro 214beon-gil, Jungwon-gu, Seongnam-si, Gyeonggi-do 13204, Republic of Korea Single Registration Number : KR-MF-000001860	GE Medical Systems SCS 283 rue de la Minière 78530 BUC, France SRN: FR-AR-000000344

Declare under our sole responsibility that the device:

Voluson S10 Expert, Voluson S10, Voluson S8t, Voluson S8, Voluson S6

Upgrade kit:

Voluson Signature to BT22 UPG

Basic UDI-DI: **8406821BUG00209H8**

Identification number:

Product name	Catalog Number	UDI-DI
Voluson S10 Expert	H43282LA	00195278473042
Voluson S10	H43282LB	00195278473059
Voluson S8t	H43282LC	00195278473066
Voluson S8	H43282LD	00195278473073
Voluson S6	H43282LE	00195278473080

Upgrade kit:

Voluson Signature to BT22 UPG	H43222LC	00195278473028
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Intended Purpose: The **Voluson S10 Expert, Voluson S10, Voluson S8t, Voluson S8 and Voluson S6** are intended for ultrasound evaluation in the following clinical application: Image Acquisition for diagnostic purposes including measurements on acquired images.

GMDN Code: **40761**

GMDN Description: General-purpose ultrasound imaging system

EMDN Code: **Z11041**

EMDN Description: Ultrasound Scanners

Class: **IIa**

Classification rule (Annex VIII): **Rule 10**


Jiyeon Park
Sr. Regulatory Affairs Leader
2021-DEC-17



To which this declaration relates is in conformity with the requirements of the medical devices regulation 2017/745 that apply to it and with the requirements of the directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) and the directive 2014/53/EU on the radio equipment (RED).

This conformity is based on the following elements:

- Technical Documentation reference: DOC2624748, of the product to which this declaration relates.
- EC certificate No. HZ 2004702-01:
 - Conformity assessment procedure followed: Annex IX of the medical device regulation 2017/745
 - Delivered by TUV Rheinland LGA Products GmbH (Notified Body n° 0197)

This EU declaration of conformity supersedes the previous declaration dated 2021-Nov-17.

SIGNATURE:

Date of issue: 2021-Dec-17
Place of issue: Seongnam-si
Name: Jiyeon Park
Function: Senior Regulatory Affairs Leader
Signature:

**ADDENDUM TO THE DECLARATION OF CONFORMITY DOC2624755****Voluson S10 Expert, Voluson S10, Voluson S8t, Voluson S8, Voluson S6
– Accessories and Components**

Description	Catalog number					
Ultrasound Console & Upgrade kit						
Voluson S10 Expert	H43282LA					
Voluson S10	H43282LB					
Voluson S8t	H43282LC					
Voluson S8	H43282LD					
Voluson S6	H43282LE					
Voluson Signature to BT22 UPG	H43222LC					
Description	Catalog number	Voluson S10 Expert	Voluson S10	Voluson S8t	Voluson S8	Voluson S6
Probe with accessories						
C2-9-RS Probe	H48701WL	1	1	1	1	1
C2-9-D Biopsy Starter Kit	H4913BA	1	1	1	1	1
C1-5-RS Probe	H40462LA	1	1	1	1	1
C1-5 Biopsy Starter Kit	H40432LE	1	1	1	1	1
4C-RS Probe	H4000SR	1	1	1	1	1
4C BIOPSY BRACKET	E8385NA	1	1	1	1	1
8C-RS	H40402LS	1	1	1	1	1
IC9-RS Probe	H48691PJ	1	1	1	1	1
IC9 Biopsy Starter Kit	H48691YW	1	1	1	1	1
IC9 Biopsy Guide	H48691YX	1	1	1	1	1
IC9-RS reusable Biopsy Kit	H48701MN	1	1	1	1	1
IC9B-RS Probe	H48062AK	1	1	1	1	1
E8C REUSABLE BIOPSY KIT	H40412LN	1	1	1	1	1
E721 STARTER KIT	E8385MJ	1	1	1	1	1
E8C E721 E8C-RS IC5-9H MTZ Biopsy Kit	E8333JB	1	1	1	1	1
12L-RS Probe	H40402LY	1	1	1	1	1
12L-RS Biopsy Starter Kit	H40432LC	1	1	1	1	1
9L-RS Probe	H40442LL	1	1	1	1	1
9L BIO GUIDE STARTER KIT	H4906BK	1	1	1	1	1
ML6-15-RS Probe	H40462LM	1	1	1	1	1
ML6-15 Biopsy Starter Kit	H40432LJ	1	1	1	1	1
3Sc-RS Probe	H45041DL	1	1	1	1	1
3SP MULTI-ANGLE BIOPSY	H46222LC	1	1	1	1	1
12S-RS Probe	H44901AB	1	1	1	1	1



RIC5-9A-RS Probe	H48701EJ	1	1	1	1	1
PEC63 BIOPSY KIT FOR RIC5-9	H46721R	1	1	1	1	1
RIC STERILE NEEDLE GUIDE	H48681GF	1	1	1	1	1
RIC STERILE NEEDLE GUIDE	H48691Z	1	1	1	1	1
RAB6-RS PROBE	H48691LP	1	1	1	1	1
RAB6-D BIOPSY STARTER KIT	H48681ML	1	1	1	1	1
Software Options						
3D/4D Activation	H44862LZ	1	1	1	1	1
Advanced 3D/4D Package	H44872LA	1	1	1	1	1
HDlive Silhouette	H44952LY	1	-	-	-	-
Coded contrast imaging	H44962LC	1	1	1	1	1
Radiantflow	H43182LW	1	1	1	1	1
Anatomical M-mode	H44842LC	1	1	1	1	1
Elastography	H44842LD	1	1	1	1	1
Advanced VCI w Omniview	H44842LE	1	1	1	1	1
SonoAVC	H44842LF	1	1	1	1	1
SonoL&D	H44842LG	1	1	1	1	1
SonoVCAD labor	H44842LH	1	1	1	1	1
STIC	H44842LJ	1	1	1	1	1
SonoVCADheart	H44842LK	1	1	1	1	1
TUI	H44842LL	1	1	1	1	1
VOCAL II	H44842LM	1	1	1	1	1
Inversion	H44842LN	1	1	1	1	1
4D biopsy	H44842LP	1	1	1	1	1
SingleView	H44872LE	1	1	1	1	1
HDlive	H44842LR	-	1	1	1	1
DVD and USB Recorder	H43192LB	1	1	1	1	1
Advanced Security Features	H44962LF	1	1	1	1	1
Russian Language Support (RLS)	H44942LT	1	1	1	1	1
4th Probe Port Activation	H44892LD	-	-	1	1	1
3D Print Export	H44962LE	-	-	1	1	1
B-Flow	H44872LS	-	-	1	1	1
XTD	H44872LT	-	-	1	1	1
Scan assistant	H44962LB	-	-	1	1	1
SonoBiometry Brain	H43292LC	1	1	1	1	1
SonoCNS	H43292LD	1	1	1	-	-
Uterine Trace	H43292LE	1	1	1	-	-
C2-9-RS Activation	H43292LB	1	1	1	1	1
4DView 18	H48701YF	1	1	1	1	1
Hardware Options						
VS10 Drawer	H44852LL	1	1	-	-	-



S8-S6 High Cabinet	H44892LA	-	-	-	1	1
S8-S6 Drawer	H44892LB	-	-	1	1	1
S8-S6 Gel Holder	H44882LY	-	-	-	1	1
Horizontal TV Holder	H43182LT	-	-	1	-	-
Horizontal TV Holder	H46732LJ	-	-	-	1	1
Vertical TV Holder	H46732LK	-	-	-	1	1
DPS with Battery Pack	H43192LC	1	1	1	1	1
DPS with Battery Pack for MC only	H43192LD	1	1	1	1	1
Battery Pack (LPC only)	H43192LH	1	1	1	1	1
CWD Option Kit	H43192LE	1	1	1	1	1
VS10 Expert - VS10 - VS8t ECG Option Kit	H43192LJ	1	1	1	-	-
VS8 - VS6 ECG Option Kit	H43192LK	-	-	-	1	1
ECG Cable - AHA	H46102LW	1	1	1	1	1
ECG cable - IEC	H46102LZ	1	1	1	1	1
Internal Universal Video Converter	H43192LF	1	1	1	1	1
1TB SSD	H43292LA	1	1	1	1	1
1TB SSD (Make Center Only)	H43292LM	1	1	1	1	1
Peripherals						
B&W Printer Digital (SONY, UP-D898)	H46992LS	1	1	1	1	1
Color Printer Digital (SONY, UP-D25MD)	H44642LW	1	1	1	1	1
B&W Printer install kit, VS10 Expert & VS10	H44962LN	1	1	-	-	-
Color Printer install kit, VS10 Expert & VS10	H44962LK	1	1	-	-	-
BW Printer Kit, VS10 Expert & VS10	H44972LB	1	1	-	-	-
Color Printer Kit, VS10 Expert & VS10	H44962LW	1	1	-	-	-
B&W Printer install kit, VS8t, VS8, VS6	H44962LP	-	-	1	1	1
Color Printer install kit, VS8t, VS8, VS6	H44962LL	-	-	1	1	1
BW Printer Kit, VS8t - VS8	H44972LC	-	-	1	1	1
Color Printer Kit, VS8t - VS8	H44962LY	-	-	1	1	1
Power Cord 220V for EU	H46342LZ	-	-	1	1	1
Network Printer EU	H48701EZ	1	1	1	1	1
Network Printer USA	H48711MZ	1	1	1	1	1
Accessories						
WLAN Stick	H44932LH	1	1	1	1	1
USB FootSwitch - 3 Buttons	H46732LF	1	1	1	1	1
Bar Code Scanner	H48701JH	1	1	1	1	1



32" External Patient Monitor Set	H48701WK	1	1	1	1	1
Ethernet Protection Cable	H43272LJ	1	1	1	1	1
Isolation Transformer	H48671WN	1	1	1	1	1
Isolated USB connector	H46972LZ	1	1	1	1	1
Isolated 1Gb Ethernet connection	H46972LY	1	1	1	1	1
System power supply noise filter (EMI filter)	H46162LH	1	1	1	1	1
Universal Power Supply (UPS) 220V/230V	H48691PE	1	1	1	1	1
Power Cord Fix Bracket 220V	H46912LC	1	1	1	1	1
Power Cord Fix Bracket 110V	H46912LD	1	1	1	1	1
Color Print Pack UPC-21 L	H46851B	1	1	1	1	1
Color Print Pack UPC-21 S	H46861B	1	1	1	1	1
High-Glossy BW Printer Paper (UPP-110HG)	H46811A	1	1	1	1	1
Voluson Cleaning Cloth	H43222LZ	1	1	1	1	1
Ocean Pack Material-Korea (only for LPC)	H40242LF	1	1	1	1	1
Upkit						
Voluson S10 BT16 to BT22 UPG	H43222LE	-	1	-	-	-
Voluson S8/S6 BT16 to BT22 UPG	H43222LF	-	-	-	1	1

Note: Probes and accessories may carry the CE-Mark and when applicable, the Notified Body number corresponding to the EC Declaration under with the products are CE marked by their manufacturer. GE Ultrasound Korea, Ltd. has verified the mutual compatibility of the accessories in combination with Voluson S10 Expert, Voluson S10, Voluson S8t, Voluson S8, Voluson S6 and included relevant information to users with the instructions for use.

End of Document


Jiyeon Park
Sr. Regulatory Affairs Leader
2021-DEC-19

Certificate



Quality Management System EN ISO 13485:2016

Registration No.: SX 2004702-1

Organization: GE Ultrasound Korea, Ltd.
9, Sunhwan-ro, 214beon-gil,
Jungwon-gu, Seongnam-si,
Gyeonggi-do 13204
Republic of Korea

Scope: Design and Development, Manufacture and Distribution of Ultrasound
Diagnostic Devices and Systems

The Certification Body of TÜV Rheinland LGA Products GmbH certifies that the organization has established and applies a quality management system for medical devices.
Proof has been furnished that the requirements specified in the abovementioned standard are fulfilled. The quality management system is subject to yearly surveillance.

Report No.: 156138907-40
Effective date: 2021-11-05
Expiry date: 2024-10-18
Issue date: 2021-10-19



S. Liu
TÜV Rheinland LGA Products GmbH
Tillystraße 2 · 90431 Nürnberg · Germany



Voluson Signature Series

PROBE GUIDE

Voluson™

A Healthier Future for Women

gehealthcare.com



	Description	Applications	Bandwidth	FOV
CURVED – 2D				
 C2-9-RS H48701WL	XDclear™ Wideband Convex Probe	Abdomen, Obstetrics, Gynecology, Pediatrics	2.5 - 9.1 MHz	94°
 C1-5-RS H40462LA	Wideband Convex Probe	Abdomen, Obstetrics, Gynecology	2 – 5 MHz	114°
 4C-RS H4000SR	Wideband Convex Probe	Abdomen, Obstetrics, Gynecology	2 – 5 MHz	81°
 8C-RS H40402LS	Wideband Microconvex Probe	Abdominal, Small Parts, Cardiology, Peripheral Vascular, Pediatrics	4 – 10 MHz	131°
CURVED – REAL-TIME 4D				
 RAB6-RS H48691LP	Wideband Convex Ultra-light Volume Probe	Abdomen, Obstetrics, Gynecology, Pediatrics	2 – 8 MHz	90° V 90° x 85°
ENDOCAVITY – 2D				
 IC9-RS H48691PJ	Wideband Microconvex Endocavitary Probe	Obstetrics, Gynecology, Transrectal	2.9 – 9.7 MHz	185°
 IC9B-RS H48062AK	Wideband Microconvex Endocavitary Probe	Obstetrics, Gynecology, Transrectal	2.9 – 9.7 MHz	185°
ENDOCAVITY – REAL-TIME 4D				
 RIC5-9A-RS H48701EJ	Wideband Microconvex Endocavitary Volume Probe	Obstetrics, Gynecology, Transrectal	3.8 - 9.3 MHz	184° V 184° x 120°

	Description	Applications	Bandwidth	FOV
LINEAR - 2D				
 9L-RS H40442LL	Wideband Linear Probe	Obstetrics, Small Parts, Peripheral Vascular, Pediatrics, Musculoskeletal	3 – 8 MHz	44 mm
 12L-RS H40402LY	Wideband Linear Probe	Small Parts, Peripheral Vascular, Pediatrics, Musculoskeletal, Breast	4 – 12 MHz	38 mm
 ML6-15-RS H40462LM	Wideband Linear Probe with Active Matrix Array Technology	Small Parts, Peripheral Vascular, Pediatrics, Musculoskeletal, Breast	4 – 13 MHz	50 mm
PHASED ARRAY - 2D				
 3SC-RS H45041DL	Wideband Phased Array Probe	Abdominal, Obstetrics, Cardiology, Pediatrics, Cephalic	1 – 4 MHz	90°
 12S-RS H44901AB	Wideband Phased Array Probe	Small Parts, Cardiology, Pediatrics	4 – 12 MHz	90°

For probe care and cleaning information,
visit www.gehealthcare.com/transducers

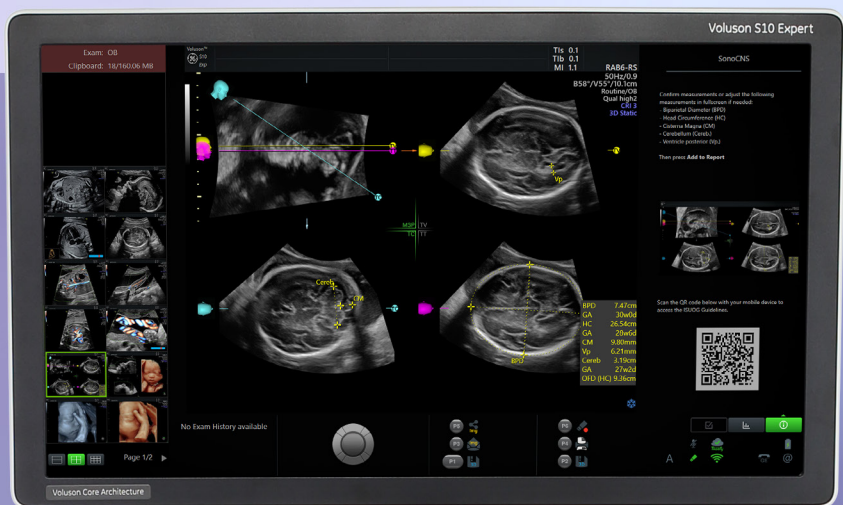
Not all probes available in all countries.

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October 2021
JB17423XX





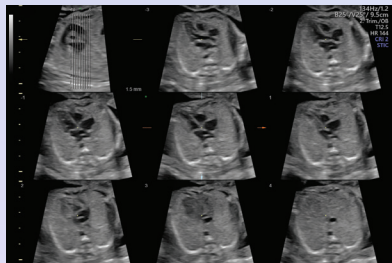
SIGNATURE SERIES

Voluson™ Sono-Automation

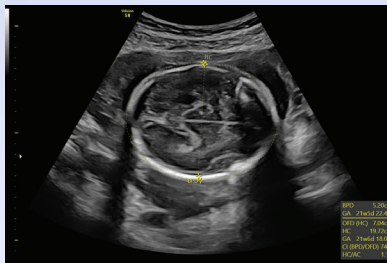
STREAMLINING EVERYDAY WORKFLOW

Patient demands and time pressures are high. To succeed, your practice requires exceptional and efficient imaging – helping you to provide answers for your patients while managing your busy practice. With easy-to-use automation tools you can streamline your workflow and decrease exam complexity while increasing consistency. Voluson's Sono-Automation technologies help improve reproducibility of obstetric and gynecologic exams while documenting for quality assurance purposes, helping you accomplish more each day while empowering you to deliver the best care to your patients.

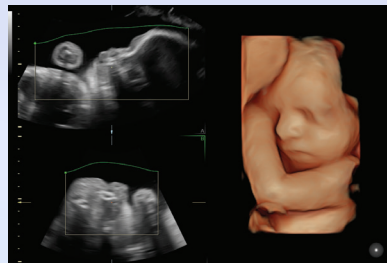
Easy-To-Use Tools to Help Reduce Keystrokes



SonoV[®]CAD™*heart* (Sonography-based Volume Computer Aided Display *heart*) – Automatically extracts and displays the standard recommended cardiac views from a single STIC volume acquisition



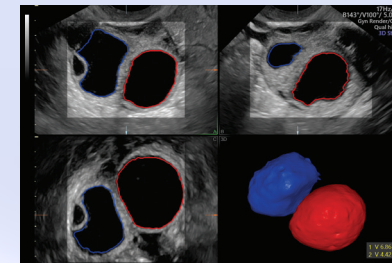
SonoBiometry – Performs semi-automated biometry measurements to help reduce keystrokes (BPD, HC, AC, FL, HL, cisterna magna, lateral ventricle and cerebellum)



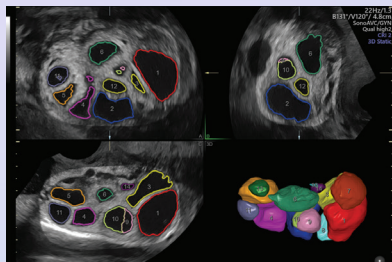
SonoRenderlive – Automatically places the 3D render line to simplify rendering with a fluid interface



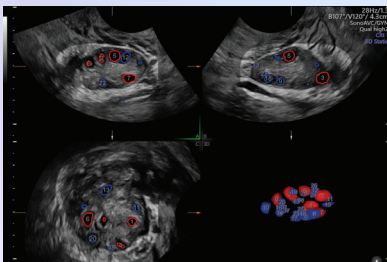
SonoNT™/SonoIT (Sonography-based Nuchal/Intracranial Translucency) – Semi-automated, standardized measurements of nuchal and intracranial translucency



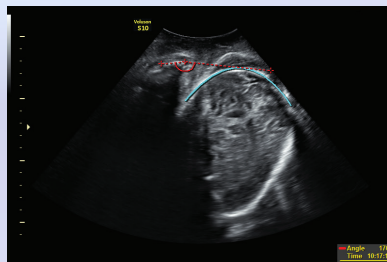
SonoAVC™*general* (Sonography-based Automated Volume Count *general*) – Aids in visualization and measurement of hypoechoic structures within anatomy such as the fetal brain, kidneys and sonohysterograms



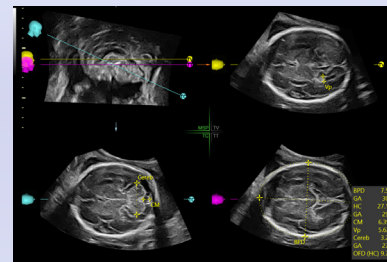
SonoAVC*follicle* (Sonography-based Automated Volume Count *follicle*) – Identifies the number and calculates the dimensions and volume of hypoechoic structures



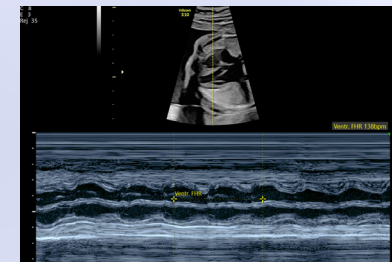
SonoAVCantral^{2.0} (Sonography-based Automated Volume Count *antral*) – Automates ovarian reserve assessment identifying and counting antral follicles



SonoL&D – Measures and documents fetal head progression providing objective data for reporting as well as patient communication



SonoCNS – An AI deep learning technology that helps properly align and display recommended views and measurements of the fetal brain



SonoFHR – Places calipers on the M-mode or PW trace to automate Fetal Heart Rate calculation



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November 2021
JB18015XX

Some technologies may not be available on all Voluson systems – please check with your local sales representative.



S10 AND S8

Voluson HD*live* Technologies

A UNIQUE CLINICAL PERSPECTIVE

Having more information can help enrich clinician-patient communication and facilitate a more complete understanding of exam results. With Voluson's HD*live*™ technology, you can reveal a unique clinical perspective of both fetal anatomy and gynecologic structures, providing incredible anatomic realism to surface, vascular, and internal structures.

Powered by the Voluson™ Core Architecture, HD*live* utilizes a combination of advanced skin illuminating and shadowing that can help visualize details which may have been hidden and provide a deeper understanding of relational anatomy and developing structures.



Illuminating the Fine Details

HDlive imaging is enabled through a combination of the Voluson Core Architecture and advanced volume technologies. While conventional ultrasound uses a fixed light source that reflects light off the skin surface, HDlive offers a movable virtual light source and calculates the propagation of light through skin and tissue.

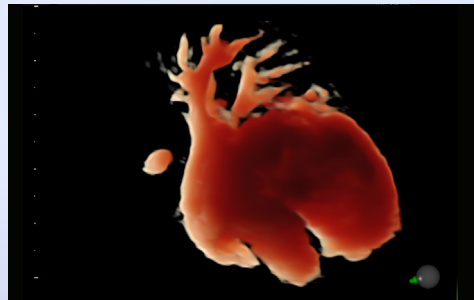
The light source can be freely positioned to any angle with the trackball to illuminate areas of interest within the volume. Positioning the virtual light source behind the volume can

produce a back-light effect. With each application, HDlive helps to reveal fine details for more comprehensive evaluations.

HDlive can also help enrich clinician to patient communication, facilitating a more complete understanding of exam results and visual connection. Voluson HDlive is helping establish a new level of 3D/4D imaging which can help empower clinicians with increased clinical confidence and improved image clarity.



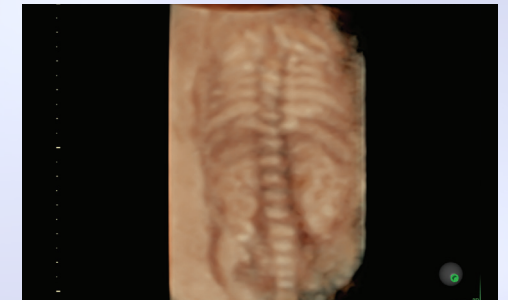
Fetal Face



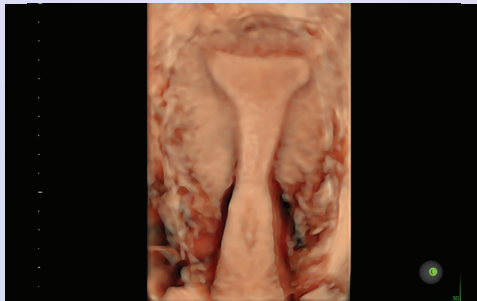
Fetal Heart



10-Week Fetus



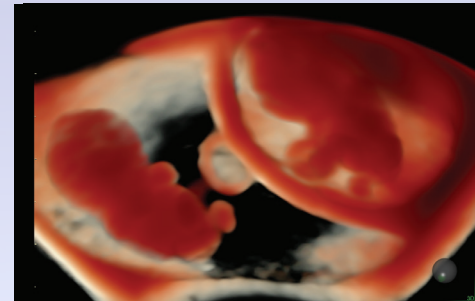
Fetal Spine, Ribs & Kidneys



Coronal Uterus



9-Week Twins – Light Source Front



9-Week Twins – Light Source Back



Fetal Hand and Face



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November 2021
JB18017XX

VOLUSON S10 BT22

European Product Tree
2022

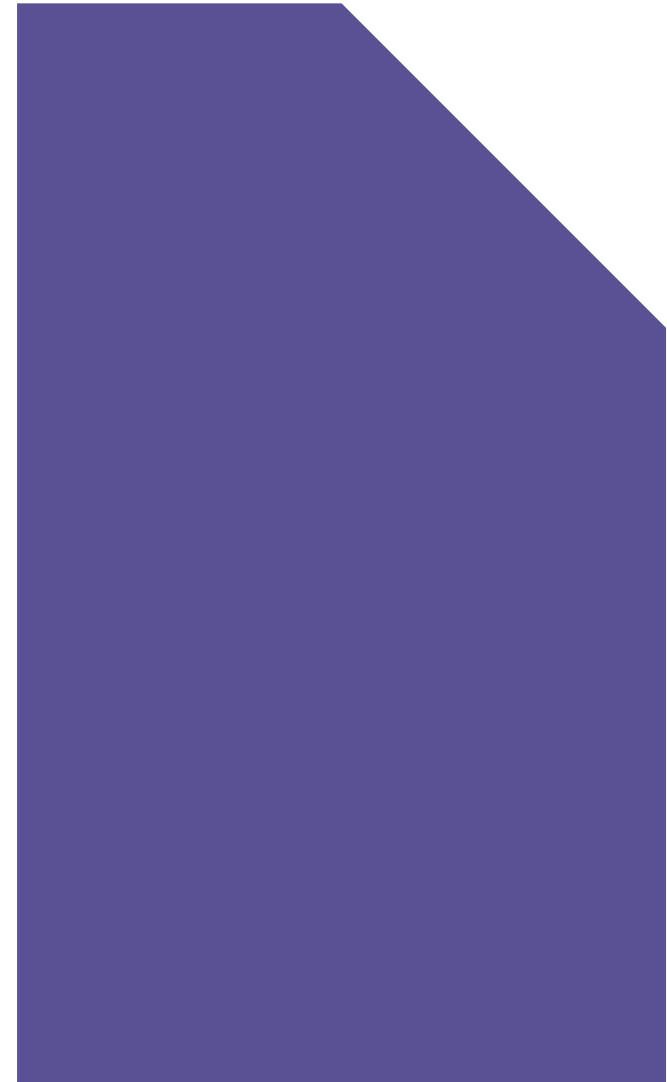
Rev: 02



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Voluson S10 BT22 Console

Probes:

- 3Sc-RS
- 12S-RS
- 9L-RS
- 12L-RS
- ML6-15-RS
- C2-9-RS
- C1-5-RS
- 4C-RS
- 8C-RS
- IC9-RS
- IC9B-RS
- RAB6-RS
- RIC5-9A-RS

SW Options:

- 3D/4D Activation
- Advanced 3D/4D Package
- Uterine Trace
- SonoAVC
- HDlive
- Anatomical M-mode
- STIC
- SonoVCADheart
- Sono L&D
- SonoVCADlabor
- SonoCNS
- VOCAL II
- Elastography
- Coded contrast imaging
- Radiantflow
- DVD and USB Recorder (Software DVR)
- Advanced Security Features
- C2-9-RS Activation
- Russian Language Support

HW Options:

- Drawer
- Battery Pack
- CW Doppler

ECG Options:

- ECG Option Kit
- ECG cable – IEC

Connectivity Options:

- Internal Universal Video Converter (UVC)
- Wireless Display Solution

Printers:

- BW Printer Kit
- Color Printer Kit
- Network Printer

Printer Paper:

- Paper large and small for Sony UP21/23
- BW Printer Paper

Accessories:

- Voluson Cleaning Cloth
- WLAN Stick
- External Patient Monitor
- USB FootSwitch
- Barcode-Scanner
- Isolated USB connector
- Isolated 1GB Ethernet connection
- Ethernet protection cable
- System power supply noise filter (EMI filter)
- Isolation Transformer
- Universal Power Supply (UPS)

Item Number	Description	Description / Comments
	Base Systems	
	Base System	
H43282LB	Voluson S10 BT22	The Voluson S10 comes in a tall cabinet configuration. To fully optimize the space and provide additional functionality it is recommended to add either the Drawer or Color Printer.

SYSTEM STANDARD FEATURES (see datasheet for more information)	SYSTEM STANDARD FEATURES (see datasheet for more information)
Innovative user interface with high resolution 10.1" LCD touch panel	BetaView
4 Active Probe Ports	Patient information database
Gel Holder	Image Archive on hard drive
Horizontal Endocavity Probe Holder	3D/4D data compression (lossy/lossless)
B-Mode	Real-time automatic Doppler calculations
M-Mode	Measurement and Calculations including Worksheets/Report for:
PW-Doppler	- OB - GYN - Abdominal - Pediatrics - Small Parts - Musculoskeletal (MSK) - Vascular - Cephalic - Transrectal - Cardio - Breast
CFM (Color Flow Doppler Mode)	Multigestational Calculations
HD-Flow™ & Power Doppler Mode	IOTA (International Ovarian Tumor Analysis): LR2, Simple Rules and ADNEX Model (not available in all countries)
Tissue Doppler	IETA (International Endometrial Tumor Analysis) Report
B-Flow	IDEA (International Deep Endometriosis Analysis) Report
Coded Harmonic Imaging with Pulse Inversion Technology	Scan Assistant
Automatic Tissue Optimization	- Enables measurements and annotations - Enters visualize anatomy from OB and GYN exams into worksheet - Performs predefined mode changes, preset selection and screen layout changes
Auto TGC	- Supports display of user selected reference images - Standardize image sequence upon DICOM transfer
Coded Excitation (CE)	Report Editor
Focus and Frequency Composite (FFC)	Integrated uplink for Cloud-based data storage (Tricefy™) (not available in all countries)
Advanced Speckle Reduction Imaging (SRI II)	DICOM® 3.0 Connectivity
CrossXBeamCRI™ (Compound Resolution Imaging)	3D Print File Export
XTD	Probe Check: On-board probe quality assessment tool
SonoBiometry (HC, BPD, AC, FL, HL, CM, Vp, Cerebellum)	
SonoFHR, Fetal Heart Rate	
SonoNT/ SonoIT	
HD Zoom & Pan Zoom	
Steering – 2D	
Virtual Convex (Trapezoid Image, also with CrossXBeamCRI)	
Wide-sector (Max Angle)	
Education Videos	

4 Active Probe Ports
Standard



Gel Holder and
Horizontal Probe Holder
Standard



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Item Number	Description	Description / Comments
Probes		
2D Sector Phased Array		
H45041DL	3Sc-RS	
H44901AB	12S-RS	Please note that 12S-RS does not have a Biopsy Guide
2D Linear Array		
H40442LL	9L-RS	
H40402LY	12L-RS	
H40462LM	ML6-15-RS	
2D XDClear Curved Array		
H48701WL	C2-9-RS	Activation Option required: H43292LB, C2-9-RS Activation
2D Curved Array		
H40462LA	C1-5-RS	
H4000SR	4C-RS	
H40402LS	8C-RS	Please note that 8C-RS does not have a Biopsy Guide
2D Endocavity		
H48691PJ	IC9-RS	
H48062AK	IC9B-RS	
4D Mechanical		
H48691LP	RAB6-RS	3D/4D Software required: H44862LZ - 3D/4D Activation or H44872LA - Advanced 3D/4D Package
H48701EJ	RIC5-9A-RS	3D/4D Software required : H44862LZ - 3D/4D Activation or H44872LA - Advanced 3D/4D Package



IC9-RS



IC9B-RS

Item Number	Description	Description / Comments
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	Software Options	
	Software Option	
H44862LZ	3D/4D Activation	Includes: Static 3D, 4D Realtime, SonoRenderlive
H44872LA	Advanced 3D/4D Package	Includes: 3D/4D Activation, TUI, Inversion, 4D Biopsy, SingleView
H43292LE	Uterine Trace	Includes: Advanced VCI w/ Omniview
H44842LF	SonoAVC	Includes: (SonoAVC follicle, SonoAVC general, SonoAVC antral
H44842LR	HDlive	Includes: HDlive 3D & 4D, depth rendering, and movable virtual light source with gradient light
H44842LC	Anatomical M-mode	
H44842LJ	STIC	
H44842LK	SonoVCADheart	
H44842LG	Sono L&D	
H44842LH	SonoVCADlabor	
H43292LD	SonoCNS	
H44842LM	VOCAL II	
H44842LD	Elastography	
H44962LC	Coded contrast imaging	
H43182LW	Radiantflow	
H43192LB	DVD and USB Recorder (Software DVR)	
H44962LF	Advanced Security Features	Activates HD encryption, Whitelisting
H43292LB	C2-9-RS Activation	Required to utilize the C2-9-RS on Voluson S10
H44942LT	Russian Language Support	

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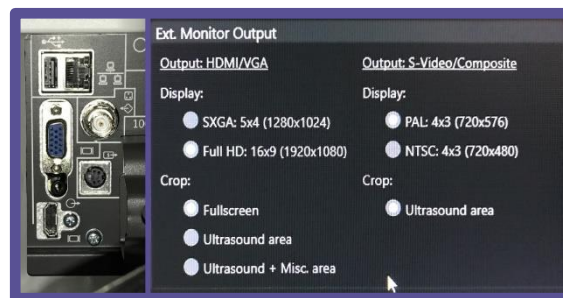
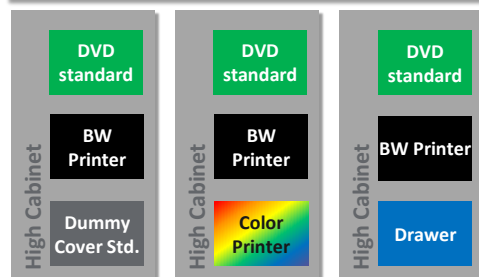
Item Number	Description	Description / Comments
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Hardware Options		
H44852LL	VS10 Drawer	Recommended
H43192LC	Battery Pack, Field Upgrade	
H43192LH	Battery Pack, Late Point Configuration Center Only	
H43192LE	CW Hardware Option (with SW Option)	CW Software automatically activates with hardware option CW only available on 3Sc-RS & 12S-RS probe
ECG Options		
H43192LJ	VS10 Expert - VS10 - VS8t ECG Option Kit	ECG cable mandatory with ECG Option
H46102LZ	ECG cable – IEC (Norav)	
Connectivity Options		
H43192LF	Internal Universal Video Converter (UVC)	Adds S-Video & Composite BNC in addition to the standard HDMI & VGA video outputs. UVC required to crop HDMI and VGA signals
H43262LL	Wireless Display Solution	Smooth wireless streaming of Full HD 1080p content. Includes transmitter (system side) and Receiver (monitor side)

The Voluson S10 comes in a tall cabinet configuration. To fully optimize the space and provide additional functionality it is recommended to add either the Drawer or Color Printer.

H44852LL - Drawer

H44962LW- Color Printer Set



Internal UVC



Wireless Display Solution
H43262LL

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Item Number	Description	Description / Comments
Peripherals		
Printers		
H44972LB	BW Printer Kit, VS10 Expert & VS10 BT22	Includes: B&W Printer (SONY, UP-D898) - H46992LS ¹ & B&W Printer install kit, VS10 Expert & VS10 BT22 - H44962LN ¹
H44962LW	Color Printer Kit, VS10 Expert & VS10 BT22	Includes: Color Printer (SONY, UP-D25MD) - H44642LW ¹ ; Color Printer install kit, VS10 Expert & VS10 BT22 - H44962LK ¹ ; Color Printer paper (UPC-21 L) - H46851B
H48701EZ	Network Printer EU	Includes: Color Laser Printer (currently HP452nw) for 220V countries, network connection required.
Printer Paper		
H46851B	PAPER LARGE FOR SONY UP21/23	Compatible with SONY, UP-D25MD Color printer. 200 prints and ribbon (50 sheets x 4 packs), Paper Size 144 x 100 mm (5-3/4 x 4")
H46861B	PAPER SMALL FOR SONY UP21/23	Compatible with SONY, UP-D25MD Color printer. 240 prints and ribbon (80 sheets x 3 packs), Paper Size 100 x 90 mm (4 x 3-5/8")
H46811A	High-Glossy BW Printer Paper (UPP-110HG)	1 roll, compatible with SONY, UP-D898 BW printer

¹ Printer Install kits & standalone printer commercially available -Printer Sets preferred

The Voluson S10 comes in a tall cabinet configuration. To fully optimize the space and provide additional functionality it is recommended to add either the Drawer or Color Printer.

H44852LL - Drawer

H44962LW- Color Printer Set



Network Printer



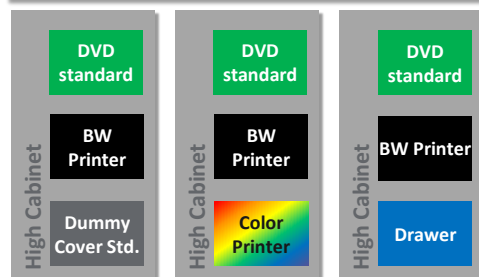
Paper large for Sony UP21/23



BW Printer Paper



Paper small for Sony UP21/23



Item Number	Description	Description / Comments
Accessories		
H43222LZ	Voluson Cleaning Cloth	3 Voluson branded purple microfiber cleaning cloths, 25 cm x 25 cm
H44932LH	WLAN Stick	NETGEAR A6210
H48701WK	External Patient Monitor Set	Includes monitor and isolation transformer, H48671WN
H46732LF	USB FootSwitch	3 Buttons
H48701JH	Barcode-Scanner	
H46972LZ	Isolated USB connector	For isolation between system and powered external USB device.
H46972LY	Isolated 1Gb Ethernet connection	For isolation between system and ethernet.
H43272LJ	Ethernet protection cable	2-piece cable designed to disconnect under tension. This can help prevent damage to the Ethernet port on the system or the customers' wall if the system is moved while connected to the ethernet.



**Voluson
Cleaning
Cloth**
H43222LZ



Foot Switch
H46732LF



**Bar Code
Scanner**
H48701JH



**Isolated USB
connector**
H46972LZ



**Isolated 1Gb
Ethernet
connection**
H46972LY



**Ethernet
protection cable**
H43272LJ



WLAN Stick
H44932LH



External Patient Monitor Set
H48701WK

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Item Number	Description	Description / Comments
Accessories		
H46162LH	System power supply noise filter (EMI filter)	For isolation between system and wall outlet power. UPS and EMI filter are not compatible, do not use together
H48671WN	Isolation Transformer	Provides power isolation to external monitor / peripherals connected to system.
H48691PE	Universal Power Supply (UPS) 220/230V	230V 1kVA 750W Medical-Grade Line-Interactive Tower UPS with 6 Outlets - Dimensions: 32.26 x 19.05 x 23.11 cm, Weight: 21kg UPS and EMI filter are not compatible, do not use together



**Power supply
noise filter**
H46162LH



**Isolation
Transformer**
H48671WN



UPS 220/230V
H48691PE

Item Number	Description	Description / Comments
Power Cords and Destination Sets		
Destination Sets		!!! Mandatory for countries listed !!!
H46712LM	Destination Set - UK	!!! Mandatory for countries listed !!!
H46712LR	Destination Set - Israel	!!! Mandatory for countries listed !!!
H46712LS	Destination Set - Switzerland	!!! Mandatory for countries listed !!!
H46712LT	Destination Set – Denmark, C13 RED	!!! Mandatory for countries listed !!!
H46692LK	Destination Set – Denmark, C13 GRY	!!! Mandatory for countries listed !!!
H46722LD	Destination Set - Italy	Only order if needed otherwise standard EU Type F connector will be shipped with system
H46912LC	Power Cord Fix Bracket 220V	
H46512LP	220V power cord and bracket: Type BS 1363 (UK)	Includes: Destination Set – UK H46712LM & Power Cord Bracket 220V H46912LC !!! Order if extra power cable is required !!!
Additional Power Cord		
H46342LZ	220V power cord for SONY Color printer; Type F (EU)	4M long 250V black power cord with plug type F, CEE 7/7 straight plug Only order if H44642LW, SONY Color printer (UP-D25MD) operated externally
Keyboards and Key Cap Language Kits		
H44842LT	AN Key Cap Kit - VS10 Expert, S10, S8: Swedish	
H44842LW	AN Key Cap Kit - VS10 Expert, S10, S8: Norwegian	
H44842LY	AN Key Cap Kit - VS10 Expert, S10, S8: Russian	
H44842LZ	AN Key Cap Kit - VS10 Expert, S10, S8: Spanish	
H44852LA	AN Key Cap Kit - VS10 Expert, S10, S8: Italian	
H44852LB	AN Key Cap Kit - VS10 Expert, S10, S8: German	
H44852LC	AN Key Cap Kit - VS10 Expert, S10, S8: French	
H44852LD	AN Key Cap Kit - VS10 Expert, S10, S8: Finnish	
H44852LE	AN Key Cap Kit - VS10 Expert, S10, S8: Danish	
H44852LF	AN Key Cap Kit - VS10 Expert, S10, S8: Portuguese	
H44852LG	AN Key Cap Kit - VS10 Expert, S10, S8: Swiss	
H44922LW	AN Key Cap Kit - VS10 Expert, S10, S8: Greek	
H44962LH	AN Key Cap Kit - VS10 Expert, S10, S8: Slavic	
H44922LT	AN Key Cap Kit - VS10 Expert, S10, S8: English	

AN Keyboard Cap Kit



Item Number	Description	Description / Comments
Manuals and Documentation		
H43452LY	Electronic Instructions for Use (eIFU)	• S10Expert, S10, S8t BT22 • Includes USB & instructions on how to order paper manual if needed • All systems ship with 1x eIFU kit, only order if extra is required
H43412LZ	Voluson S10 Expert/S10/S8t/S6/S8/P6/P8 BT22 Advanced Reference Manual	This is the paper version - Digital version in eIFU kit
H43462LA	Voluson S series BT22 Advanced Acoustic Output Reference	Digital version in eIFU kit
H43182LP	VOLUSON S10_S10E BT18/BT22 Basic Service Manual	Digital version in eIFU kit
H43442LS	Voluson S10E/S10/S8t BT22 Doc kit_Russian	Paper user manual. Only order if paper manual is required at time of system delivery.

All systems ship with 1x eIFU kit, only order if extra is required.

Electronic Instructions for Use (eIFU) kit includes a USB flash drive containing Instructions for Use (all translated languages), Service Manual, Advanced Reference Manual and Acoustic Output Reference Manual.

A leaflet is also provided with a link to the Voluson Documentation website where manuals can be downloaded or a paper copy can be ordered.

Item Number	Description	Description / Comments
Biopsy Options		
Biopsy Options 2D Sector Phased Array		
H46222LC	3Sc-RS Biopsy Starter Kit (multi angle)	Non-sterile multi angle bracket (Depth crossing probe axis at 4.2, 5.7, 8.2 cm) & 5 needle guide kits
Biopsy Options 2D Linear Array		
H4906BK	9L-RS Biopsy Starter Kit (multi angle)	Non-sterile multi angle bracket (Depth crossing probe axis at 4, 5.5, 7 cm) & 5 needle guide kits
H40432LC	12L-RS Biopsy Starter Kit (multi angle)	Non-sterile multi angle bracket (Depth crossing probe axis at 1.5, 2.5, 3.5 cm) & 5 needle guide kits
H40432LJ	ML6-15-RS Biopsy Starter Kit (multi angle)	Non-sterile multi angle bracket (Depth crossing probe axis at 1.5, 2.5, 3.5 cm) & 5 needle guide kits
Biopsy Options 2D Curved Array		
H4913BA	C2-9-RS Biopsy Starter Kit (multi angle)	Includes: Non-sterile multi angle bracket (Depth crossing w/ probe axis at 3, 6, 8.5 cm) & 5 needle guide kits
H40432LE	C1-5-RS Biopsy Starter Kit (multi angle)	Non-sterile multi angle bracket (Depth crossing w/ probe axis at 4, 6, 8.5cm) & 5 needle guide kits
E8385NA	4C-RS Biopsy Starter Kit (multi angle)	Non-sterile multi angle bracket (Depth crossing w/ probe axis at 4, 6, 10 cm) & 5 needle guide kits
Biopsy Options 2D Endocavity		
H48701MN	IC9-RS Reusable Biopsy Guide	Reusable - Stainless Steel Biopsy Guide
H48691YW	IC9-RS Disposable Biopsy Guide Kit - with latex cover	Civco - 24 Sterile endocavity needle guide kits with latex covers
H48691YX	IC9-RS Disposable Biopsy Guide - without latex covers	Civco - 24 Sterile endocavity needle guide kits without covers
H40412LN	IC9B-RS Reusable Biopsy Guide	Reusable - Stainless Steel Biopsy Guide
E8385MJ	IC9B-RS Disposable Biopsy Guide Kit - with latex covers	Civco - 24 Sterile endocavity needle guide kits with latex covers
E8333JB	IC9B-RS Disposable Biopsy Guide - with latex covers	Protek - 24 Sterile endocavity needle guide kits with latex covers



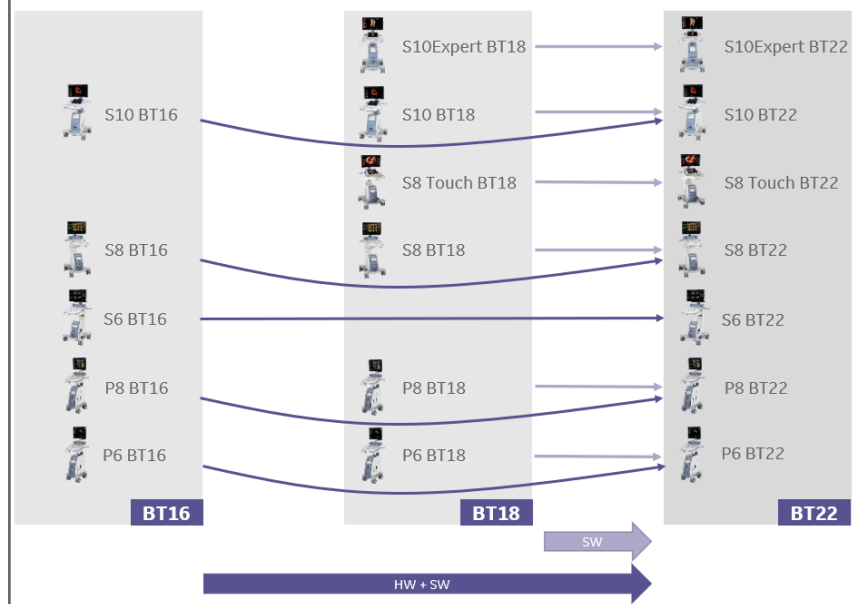
Item Number	Description	Description / Comments
Biopsy Options		
Biopsy Options 4D		
H46721R	Reusable Biopsy Guide for RIC Probes	Reusable - Stainless Steel - : PEC-63 (<1.6 mm)
H48691Z	RIC Probe Disposable Biopsy Guide - with Latex Cover	Civco - 24 Sterile endocavity needle guide kits with latex covers
H48681GF	RIC Probe Disposable Biopsy Guide - without latex covers	Civco - 24 Sterile endocavity needle guide kits without covers
H48681ML	RAB6-RS / RAB2-6-RS Biopsy Starter Kit (multi angle)	Non-sterile multi angle bracket (Depth crossing w/ probe axis at 4, 6, 8 cm) & 5 needle guide kits



Item Number	Description	Description / Comments
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	Upgrades	
H43222LC	Voluson Signature BT18 to BT22 UPG	• SW only • Upgrade for Voluson Signature Series BT18 to BT22
H43222LE	Voluson S10 BT16 to BT22 UPG	• SW & HW included • Upgrade for Voluson S10 BT16 to BT22

Upgrade Path



All options currently available on the BT16/ BT18 console will remain active on BT22, except:

- Scan Assistant (BT16)
- Software DVR Module (BT16)

Item Number	Description	Description / Comments
Standalone Offering	4D View	
H48701YF	4DView 18	4DView Manuals are available through the eDistribution Download portal and do not need to be ordered separately.

Voluson S10 BT22

Revision History

Rev	Date	Created by	Description of Changes
01	December 1, 2021	M. Grabner	Initial Release
02	March 29, 2022	M. Grabner	Added connectivity options: Wireless Display Solution (H43262LL), added standalone BW & color printer Hcats Removed H44842LE (Advanced VCI w/ Omniview)

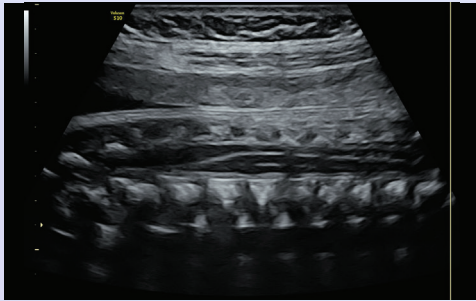


Voluson™ S10

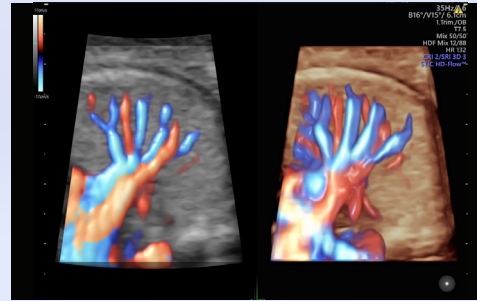
IMAGE GALLERY

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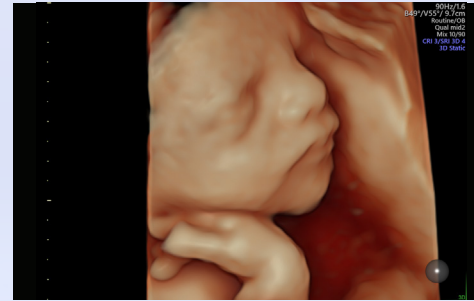




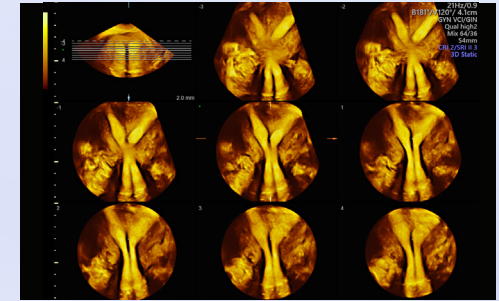
Fetal Spine



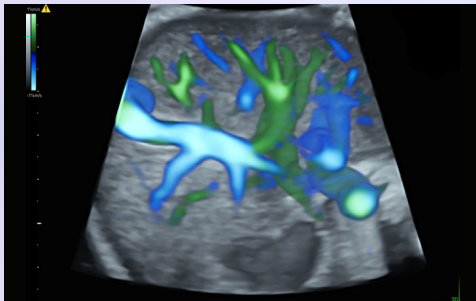
HD-Flow™ Pulmonary Vessels



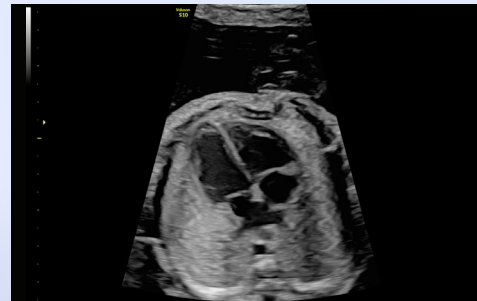
HDlive™ Fetal Face



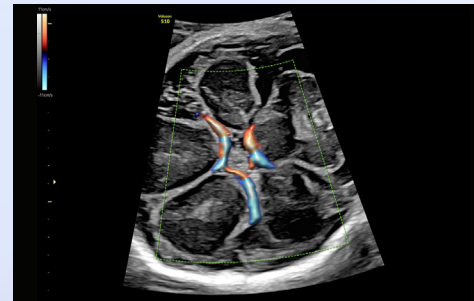
TUI Septate Uterus



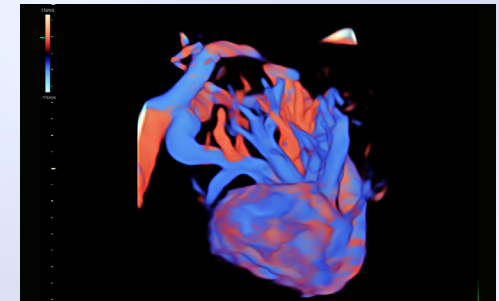
3D Glassbody Abdominal Vessels



4-Chamber Heart



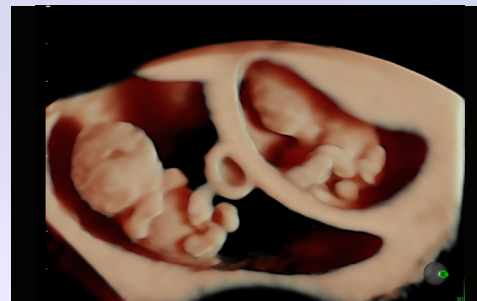
HD-Flow & Radiantflow™ Circle of Willis



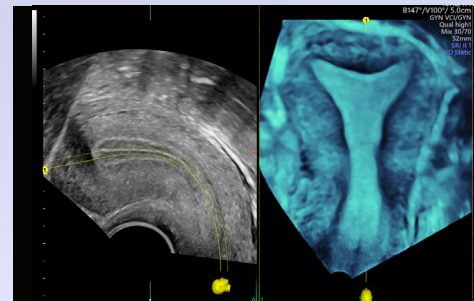
3D Color STIC



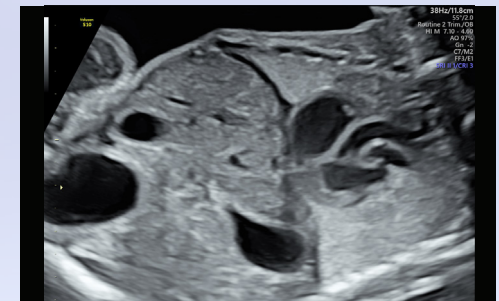
SonoNT™ Nuchal Translucency, SonoIT Intracranial Translucency



HDlive Twins



OmniView Normal Uterus



Fetal Diaphragm



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November 2021
JB18020XX

B-Flow Technology

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Introduction

There is a clinical need to visualize blood flow and vessel wall structures in the diagnosis of various vascular diseases. Also, it is believed that the vessel architecture can be an important indicator for lesion or disease assessment. Traditionally, Angiography, CT scans or MRI scans are used for this purpose. However, these modalities are more costly, access may be limited, and some use ionizing radiation and/or expensive contrast agents.

Ultrasound can be a desirable additional tool due to its non-invasive, non-ionizing radiation, real-time and economical nature. Unfortunately, B-mode, Harmonics and Color Flow imaging have inherent limitations that may hinder their ability to assess flow hemodynamics in larger blood vessels such as the carotid artery or visualize small vessels as in the kidney.

LOGIQ* B-Flow* imaging mode based on Agile Acoustic Architecture from GE Healthcare has shown great potential for addressing these clinical challenges.

Limitation of other ultrasound imaging modes

To appreciate the innovative property of B-Flow imaging technology, it's helpful to understand the challenges involved with other ultrasound imaging modes.

Blood vessels are displayed as black (anechoic) in the 2D gray scale image. The echoes from red blood cells are typically 1/1000th of the strength of signals from the surrounding tissue (i.e. -60 dB). The dynamic range of the human eye is approximately 40 dB, therefore humans can see only echoes that are greater than 1/100th of the signal strength of tissue (i.e. -40 dB). For echo strength that is less than 1/100th of the signal strength of tissue, the ultrasound system will display it as black. For echo strength that is greater than normal tissue, such as echoes from the diaphragm, an ultrasound system will display it as white, as illustrated in Figure 1.

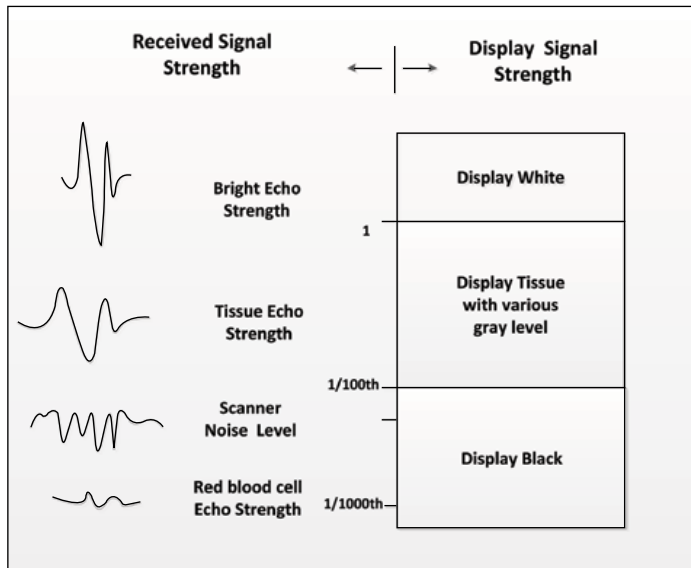


Figure 1. Displayed echo strength VS actual echo strength.

In order to observe blood flow signal in ultrasound, a large signal must be transmitted so that echoes from red blood cells are strong enough to be displayed on the screen. Doing so, however, causes echoes from surrounding tissue to be further boosted as well. If both blood flow signal and tissue are displayed on screen, the tissue will be fully saturated and appear as white signal. In order to display both blood flow and surrounding tissue, in Color Doppler mode, two sets of transmit signals are sent. Transmit signal A is sent into the body to generate the gray scale image, e.g. B-mode image. Transmit signal B is used to generate the flow image. After a transducer receives echoes from both transmit signals A and B, the ultrasound system will process the received signal to form both the gray scale image and the flow image. The system will overlay the flow image on top of the gray scale image to form a single displayed image.

As mentioned earlier, echoes from blood cells are about 1000 times weaker than that from normal tissue. Using a large transmit pulse will increase echo strength from blood cells. But the large transmit amplitude can cause undesirable biological effects inside the body. Regulatory agencies have set certain limits on the amplitude of the transmit pulse.

To boost echoes from blood cells without exceeding regulatory limits, ultrasound systems typically use a long pulse and large number of transmit signals, also known as packets. This enhances the signal to noise ratio of the echoes from blood cells and helps to visualize weak blood echoes at greater depths. Unfortunately, such depth come with trade-offs. A larger packet size results in a slower frame rate that may reduce the ability to display true hemodynamics of the blood flow. A long transmit pulse results in poor flow spatial resolution as the spatial resolution is inversely proportional to the transmit pulse length.

To maintain an adequate frame rate in Color Doppler mode, flow signal is only displayed inside a region of interest (ROI). The ROI is usually set to be smaller than the entire image display area.

Bleeding, color overwrite, or color on bright artifacts are inevitable due to the long transmit pulse and overlay technology used in Color Doppler imaging. Various techniques are used to help reduce this problem, but it is not possible to eliminate it completely and it remains one of the fundamental limitations of Color Doppler imaging.

Another fundamental principle used by Color Doppler imaging is the Doppler Effect. The main drawback of the Doppler Effect is angle dependency. When the ultrasound beam approaches 90 degrees to the blood flow, there is no Doppler effect, thus flow velocity is near zero and no blood flow is displayed inside the vessels. Angle dependency also adds challenges when accessing tortuous vessels.

Power Doppler Imaging (i.e. PDI) uses similar signal processing as in Color Doppler mode. Therefore it has similar limitations except PDI helps reduce the angle dependency by displaying flow intensity without velocity information.

B-Flow Imaging Mode

The B-Flow imaging technique displays the blood flow signals in gray scale imaging throughout the entire field of view. The displayed flow intensity is not affected by the interrogation angle of the ultrasound beam as it is with Color Doppler. In addition, B-Flow is capable of displaying true flow hemodynamics with spatial resolution similar to that of gray scale imaging. Finally, B-Flow doesn't suffer from blooming or wall overwriting as with Color Doppler mode, as B-Flow is attained simultaneously with B-mode data. Figure 2 shows jugular vein flow as it is displayed in B-Flow mode. Note: in B-Flow, the user can choose either to display flow only or display both flow signal and surrounding tissue.

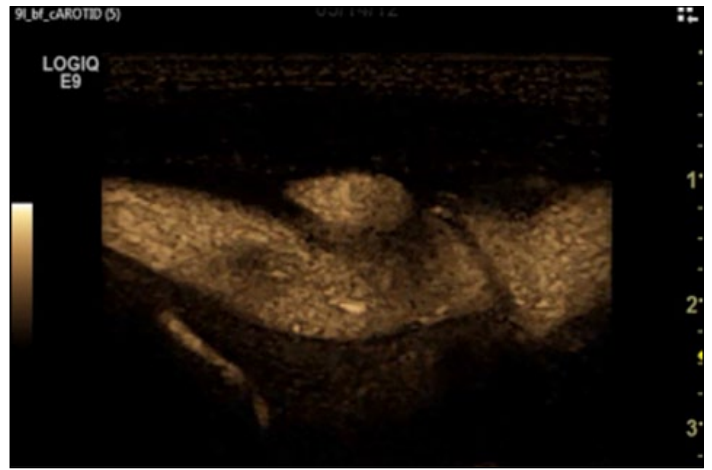


Figure 2. Jugular vein flow in B-Flow.
See playback instructions on the last page.

How B-Flow Works

B-Flow Imaging mode based on the LOGIQ Agile Acoustic Architecture from GE Healthcare employs several of GE Ultrasound's patented technologies.

First, it uses GE's proprietary Digitally Encoded Ultrasound (DEU) technology to boost weak blood cell echoes. The fundamental principle of DEU technology is illustrated in Figure 3.

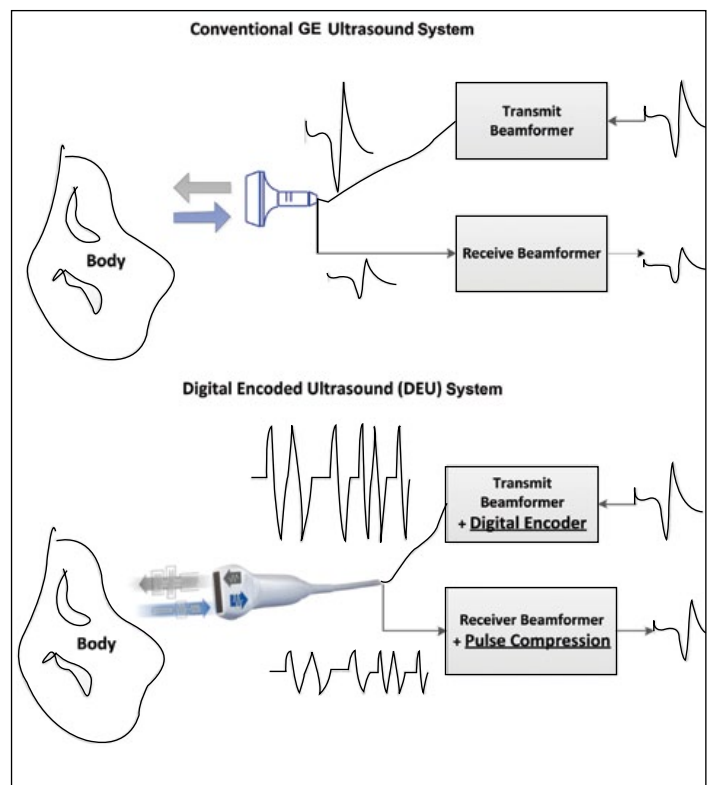


Figure 3. Fundamental principle of DEU technology.

In Figure 3, a wideband signal used in gray scale imaging is digitally encoded to form a long pulse that contains total energy many times stronger than the original pulse. This long pulse drives a transducer to send a long acoustic pressure burst into body. The echoes from both tissue and blood cells are then received by the transducer. The ultrasound system that is based on GE's Agile Acoustic Architecture employs patented technology to digitally compress or decode the long pulse into a pulse similar in length to the original pulse but with much larger amplitude as compared to a conventional GE system. This allows B-Flow imaging to display blood flow signal with spatial resolution similar to gray scale imaging.

Secondly, B-Flow uses Tissue-Blood Equalization (TBE) technology to suppress tissue signal. As mentioned earlier, the DEU technology boosts both blood flow signal and tissue signal. Without TBE technology, the tissue signal would be displayed as white on the screen. TBE technology is able to differentiate the flow signal from tissue and apply more amplification to the flow signal and less amplification on the tissue. Figure 4 shows the basic principle of the TBE technology.

Imagine you are standing in front of a huge tube with one giant red blood cell in it. The blood cell is moving from left to right as shown in Figure 4A. You take a picture of the red blood cell when it is just in front of you as shown in Figure 4B. You take a second picture when the red blood cell disappears from your vision (Figure 4C). Later, you look at these two pictures and see the only difference between the two pictures is the red blood cell. The first one has the red blood cell, and the second one doesn't. You do some photo processing and display a picture that shows the difference between the two pictures, which is the red blood cell. Now, imagine that there are many red blood cells in the tube and they pass in front of you one by one. You repeat the same process for each red blood cell. When you display the processed picture over time, you would see a red blood cell staying in front of you all the time. What would happen if you take pictures at many locations as shown in Figure 4D and then do the same process as before? You would see a stream of red blood cells as shown in Figure 4E.

In Figure 4, the tube is surrounded by tissue. TBE has a capability to display a certain amount of the surrounding tissue without tissue saturation.

TBE technology requires the picture to be taken at the interval that correlates with the speed of the red blood cell. If the moving speed of red blood cells is very slow, you will have to increase the interval of picture taking time in order to see the difference between the two consecutive pictures.

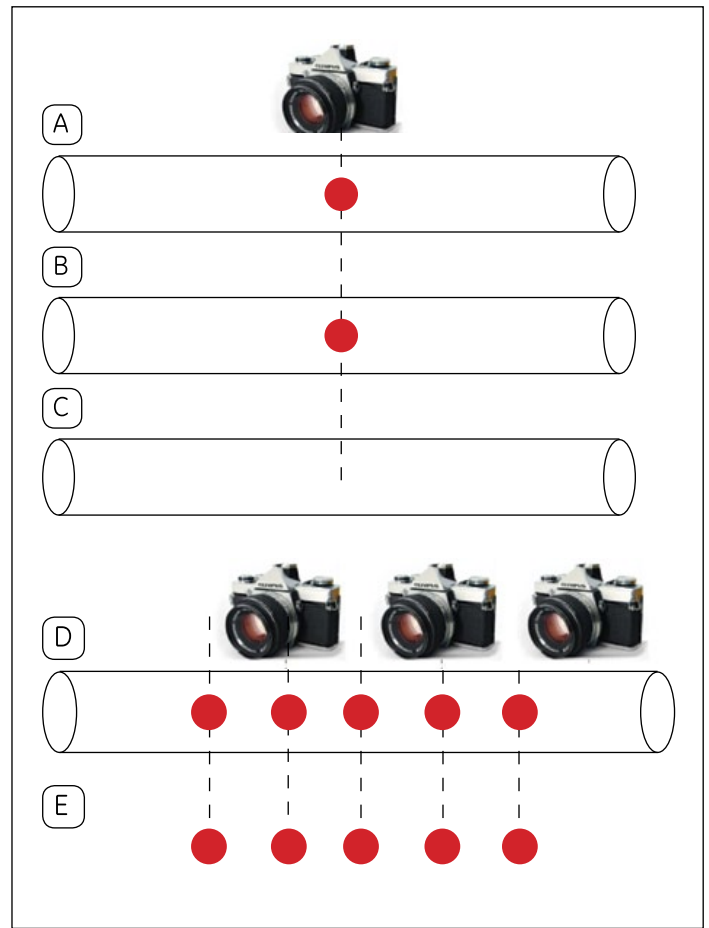


Figure 4 (A, B, C, D, E). Illustration of TBE technology.

B-Flow Color

There are scanning situations where it is desirable to maintain the background B-mode image, while visualizing vasculature. B-Flow Color mode provides high spatial resolution for flow, simultaneously with tissue imaging. This mode amplifies weak blood echoes by using DEU technology as mentioned previously, but adds directional information similar to Directional Power Doppler Imaging (PDI) mode. As a result, it provides enhanced spatial resolution, and less “bleeding” as compared to PDI mode. Also in many cases, DEU technology requires fewer transmits as compared to PDI to boost weak blood flow signal. This allows for increased frame rates and enhanced display of true hemodynamics of the blood flow. Similar to PDI, B-Flow Color helps maintain the background B-mode image quality as compared to B-Flow. See Figure 5.



Figure 5. B-Flow Color depicting detailed spatial resolution extending throughout this neonatal brain.

Flow Modes Comparison

Table 1 lists the advantages and disadvantages of Color Doppler, PDI, B-Flow and B-Flow Color mode.

	COLOR DOPPLER	PDI	B-FLOW	B-FLOW COLOR
Color Display of Flow Direction	Yes	Yes (directional PDI)	No	Yes (directional map)
Display Flow Velocity	Yes	No	No	No
Aliasing†	Yes	No	No	No
ROI	Yes	Yes	No (flow is displayed in the entire image)	Yes
Spatial Resolution	1	1	3	2
Hemodynamics	1	1	3	2
Presence of Color Overwrite	1	1	3	2
Flow Angle Dependency	1	2	3	2
Background B Image Quality	3	3	2	3
Penetration	3	3	1	2

Table 1. Comparison of different imaging modes (Rating 1-3, 1 is least and 3 is most desirable).

†There is the potential for aliasing in directional PDI and B-Flow Color with directional map.

Clinical Applications

GE's Agile Acoustic Architecture uses advanced models of sound interaction with different tissue types and powerful distributed intelligence to help enhance image quality on a broad variety of patients with few user adjustments required. This architecture makes it possible for B-Flow to display fine vessel details and flow hemodynamics. B-Flow may have clinical applications throughout the body, whether looking at large vessel flow profiles, small vessel differentiation, or organ perfusion.

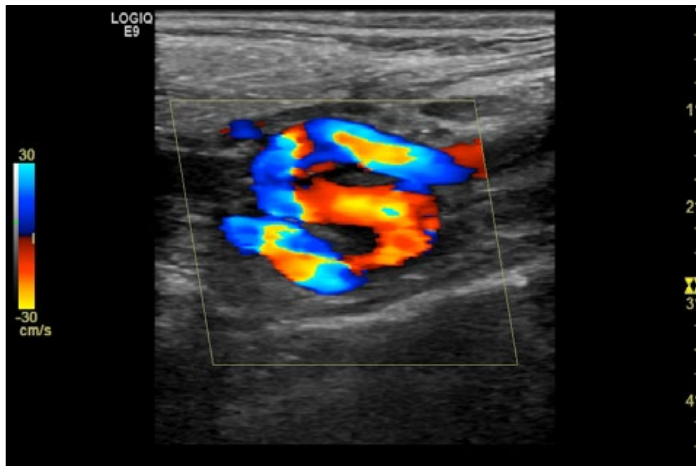


Image 1 and 2. A tortuous carotid artery demonstrated in Color Flow imaging and B-Flow Color Mode, respectively. The continuity of the vessel is easily visualized throughout the field of view in B-Flow Color mode.

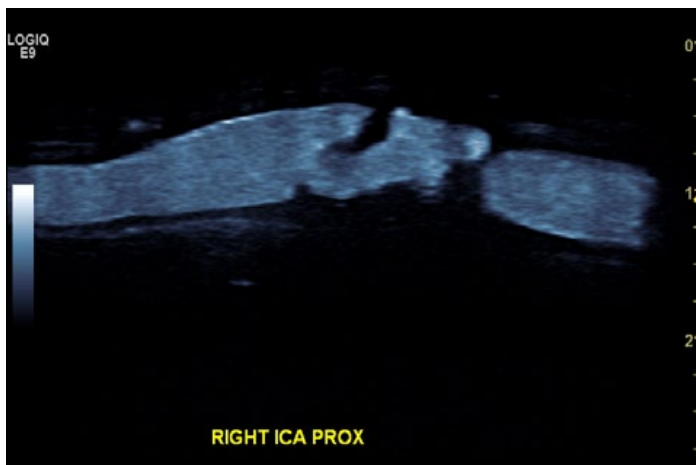


Image 3. Common carotid artery with B-Flow allowing a clear delineation of the wall defect caused by plaque.

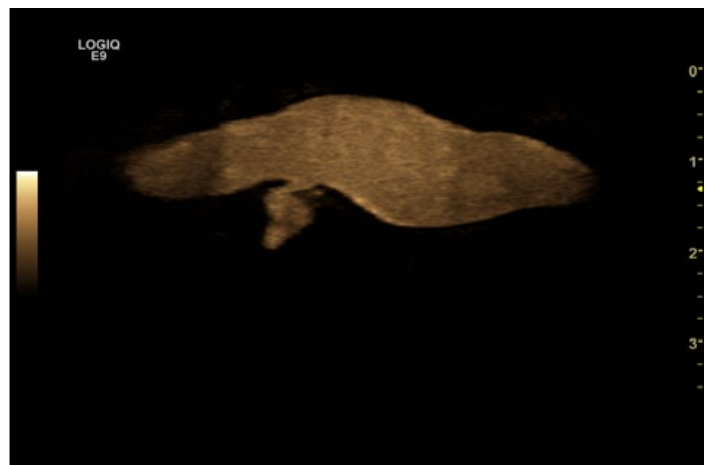


Image 4. B-Flow of a fistula, demonstrating the flow profiles and clear boundary definition.

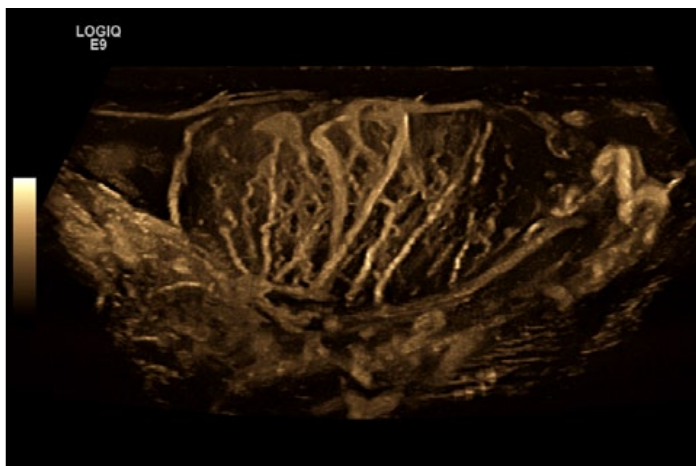


Image 5. B-Flow sensitivity demonstrating vascularity throughout this testicle.

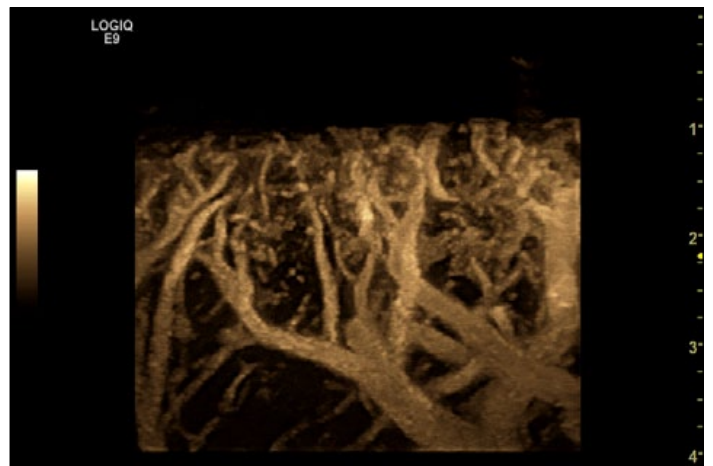


Image 6. B-Flow with Cine Capture clearly demonstrating small vessel branches to the capsule in this spleen.

Conclusions

Excellent spatial and temporal resolution of B-Flow imaging allows the user to visualize blood flow and surrounding vessel wall structure without the limitation of Color Flow "bleeding." Both B-Flow and B-Flow Color imaging modes complement the existing GE Color Doppler and Power Doppler imaging modes to help enhance clinicians' confidence in hemodynamics profiles, vessel patency in organ assessment, and help assess various vascular diseases.



Click on this symbol next to the clinical images to view them in motion. QuickTime** video player version 7.7.1 or higher is required for viewing.

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