TE7
Color Doppler Ultrasound System
Specification
Release V1.0
1 System Overview

1.1 Application
- Emergency
- Nerve
- Musculoskeletal
- Critical Care
- Abdomen
- Cardiology
- Obstetrics
- Gynecology
- Urology
- Smart part
- Vascular
- Others

1.2 Transducer types
- Curved array transducer
- Linear array transducer
- Phased array transducer

1.3 Imaging modes
- B-Mode
- THI and PSH™ (Phase Shift Harmonic Imaging)
- M-Mode
- Color Doppler Imaging
- Power Doppler Imaging/Directional PDI
- Pulsed Wave Doppler
- Continuous Wave Doppler
- Left Ventricular Opacification

1.4 Standard features
- B-Mode
- THI and PSH™
- M-Mode
- Color Doppler Imaging
- Power Doppler Imaging and Directional PDI
- Pulsed Wave Doppler
- iBeam™ (Spatial Compound Imaging)
- iClear™ (Speckle Suppression Imaging)
- iTouch™ (Auto Image Optimization)
- Smart Track
- Zoom/iZoom (Full Screen Zoom)
- FCI (Frequency Compound Imaging)
- B steer
- ExFOV (Extended Field of View)
- Post Processing
- Echo Boost™
- 3 or 1 active universal probe ports (optional)
- 120GB SSD
- Built-in wireless adapter
- Built-in battery
- 4 USB 3.0 ports
- Touch Gestures
- iStorage
- MedSight

1.5 Optional features
- Continuous Wave Doppler
- DICOM
- Shared Service Package
- Left Ventricular Opacification (LVO)
- iNeedle™ (Needle Visualization Enhancement)
- Cart
- Table stand/Wall mount

1.6 Language support
- Software: English, Chinese, German, Spanish, French, Italian, Portuguese, Russian, Czech, Polish, Turkish, Norwegian, Serbian
- User manual: English, Chinese

2 Physical Specification

2.1 Dimension and weight
- Depth: 97mm
- Width: 295mm
- Height: 380mm
- Weight: Approx. 6.1Kg (three probe socket configuration, with probe holders, no peripherals or batteries) (battery weight: 0.9Kg)

2.2 Monitor
- 15-inch high resolution color LED monitor
- Resolution: 768*1024
2.3 Cart (Option)
- DCU independent tilt of 50 degrees up, 5 degrees down.
- Dimension and Weight(with DCU)
  - Height: 1266-1556mm
  - Width: 535mm
  - Depth: 620mm
  - Weight: approx. 50Kg
- Wheels
  - Diameter: 125mm
  - Castors (4ea): total lock and break
- Towelette holster
- Gel holder
- Printer holder
- Storage bin

2.4 Table stand (Option)
- DCU independent tilt of 50 degrees up, 5 degrees down.
- Dimension and Weight(with DCU)
  - Height: 248mm
  - Width: 196mm
  - Depth: 239mm
  - Weight: approx. 2.5 Kg

2.5 Built-in Wireless adapter
- Encryption: WEP, WPA-PSK, WPA2-PSK
- Max transfer speed: 300Mbps
- Protocols: 802.11b: 11,5.5,2,1 Mbps;
  802.11g: 54,48,36,24,18,12,9,6 Mbps;
  802011n: up to 300Mbps

2.6 Built-in Battery
- Replaceable and rechargeable lithium battery
- Light indicator
- Full battery lasts more than 22h in standby mode
- Empty battery recharged to full in less than 4h
- Continuous work time: more than 2 hours
- Lithium-Ion Battery Pack 14.8V, 5800mAh (single battery)

2.7 Probe port and holder
- Probe ports: max. 3 active ports
- Detachable probe holder: 4

2.8 Electrical power
- Voltage: 100-240V~
- Frequency: 50/60 Hz
- Input current: 2.0A (115VAC)

2.9 Operating Environment
- Ambient temperature: 0-40 °C
- Relative humidity: 30%-85% (no condensation)
- Atmospheric pressure: 700hPa-1060hPa

2.10 Storage & Transportation Environment
- Ambient temperature: -20-55 °C
- Relative humidity: 20%-95% (no condensation)
- Atmospheric pressure: 700hPa-1060hPa

3 User Interface

3.1 System boot-up
- Boot-up from complete shut-down in less than 25 sec
- Shut-down in less than 15 sec
- Restore from standby mode: about 3 sec

3.2 Comments
- Supports text input and arrow
- Support freehand marking on touch screen
- Covers various applications
- User customizable

3.3 Body mark
- 144 bodymarks for versatile application

3.4 Numbers of exam mode presets: 29 system exam modes (unlimited number for user-defined ones)

3.5 Screen information*
4 Imaging Parameters

4.1 Overview
- Echo-enriched Beamforming
- Up to 55296 channels
- Up to 8-beamforming

4.2 B-mode
- Display formats
- iClear™
- iBeam™
- iTouch™
- FCI
- Echo Boost™
- Image quality
- B steer: available on linear transducers
- ExFOV: available on convex, linear, and volume transducers
- Depth
- Max. frame rate
- Acoustic output power
- TGC
- Dynamic range
- Gain
- Focus number
- Focus position
- FOV
- Line density

*Not all items are listed in this part, detail info please refer to user manual*

4.3 THI and PSH™
- Available on all types of transducer
- Patent PSH™ technology, obtains purer harmonic, better contrast resolution, higher SNR, exceptional high frequency harmonic
- iClear™ available
- Image quality

4.4 M-mode
- Display formats
- Acoustic output power
- Dynamic range
- Gain
- M sweep speeds
- M soften
- Tint maps
- Gray Map
- Edge enhance

4.5 Color Doppler Imaging
- Steer
- Image quality
- Max. frame rate
- Acoustic output power
- Gain
- ROI size/position
- Scale
- Baseline
- Wall filter
- PRF
- Packet size
- Flow state
- Smooth
- B/C align
- Priority
- Color map
- Invert
- Persistence
4.6 Power Doppler Imaging
- Support directional power doppler
- Image quality
- Acoustic output power
- Dynamic range
- Gain
- ROI size/position
- Scale
- Wall filter
- PRF
- Packet size
- Flow state
- Smooth
- B/C align
- Priority
- Power map
- Directional power map
- Persistence
- Line density
- Time/frequency resolution
- Auto calc
- Auto calc cycle
- Trace area
- Trace sensitivity
- Trace Smooth
- Duplex/Triplex
4.8 LVO (option)
- Only available on P4-2s
- Dedicated left ventricle contrast imaging tool
4.9 iTouch™
- Auto image optimization
- B-mode: gain, TGC
- Color: gain
- Power: gain
- PW: baseline, scale, PRF, WF
- For L12-4s under vascular, EM Vas and carotid exam mode: iTouch also optimizes Color ROI and PW sampling line
4.10 Smart Track
- Continuously track the flow and detect the best color box position and angle in real time scanning
- Only for L12-4s under vascular, EM Vas and carotid exam mode
4.11 Zoom
- Zoom: Pan zoom (read zoom)
- iZoom: Expand the image to full screen
4.12 Quick Save
- Create a new exam mode by quickly saving current image parameter settings
4.13 iNeedle (option)
- Needle visualization enhancement
- Available on all linear transducers
- Needle steer: -50, -40, -30, -20, 20, 30, 40, 50 degrees (also supports slight adjustment in 2° increments)

5 Cine Review and Post Processing
5.1 Cine review
Available in all modes
Frame by frame manual cineloop review or auto playback with variable speed
Maximum cine memory up to 32346 frames or 427s (M/PW)
Retrospective and prospective storage are available and length is pre-settable (Prospective: Max. time 480s; Retrospective: Max. time: 120s)

5.2 Post processing

- B-mode:
  Dyn Ra.
  Gray Map
  Tint Map
  iClear
  L/R Flip
  U/D Flip
  Rotation
  H Scale
  Echo Boost

- M-mode:
  Speed
  Dyn Ra.
  Gray Map
  Tint Map
  Edge Enhance

- Color:
  Baseline
  Smooth
  Color Map
  Priority
  Invert

- Power:
  Smooth
  Dynamic range
  Color Map
  Priority
  Invert

- PW:
  Baseline
  Volume
  Angle

Speed
Dyn Ra.
Gray Map
Tint Map
Invert
WF
Quick Angle
Auto Calculate
T/F Res
Auto Calc Cycle
Auto Calc Parameter
Trace Sensitivity
Trace Smooth
Trace Area

- CW
  Baseline
  Audio
  Angle
  Quick Angle
  Speed
  Dyn Ra.
  Gray Map
  Tint
  Tint Map
  Invert
  WF
  T/F Res
  Angle
  Quick Angle

6 Measurement/Analysis and Report*

6.1 Basic measurements
- Depth
- Distance
- Angle
- Area: Ellipse, Trace
- Volume :3-Distance
- Length Ratio
- Area Ratio
- Time
- Slope
- Heart Rate
Clinical option measurement package

- Abdominal
  - Liver
  - Common Hepatic Duct
  - Iliac Diameter
  - Gall Bladder: Length, Height, Wall Thickness
  - Common Bile Duct
  - Prox Abdominal Aorta Diameter
  - Mid Suprarenal Abdominal Aorta Diameter
  - Mid Infrarenal Abdominal Aorta Diameter
  - Distal Abdominal Aorta Diameter
  - Prox Suprarenal ABD Aorta
  - Mid Infrarenal ABD Aorta
  - Abdominal Aorta Bifurcate Diameter
  - Inferior Vena Cava
  - Distal Abdominal Aorta
  - Spleen: Length, Height, Width
  - Left/Right Kidney: Length, Width, Height, Volume, Cortical Thickness
  - Bladder: Length, Width, Height, Volume, micturition volume
  - Ureter Diameter
  - Pleural: Length, Width, Height, Volume
  - Left/Right UQ: Length, Width, Height, Volume

- Gynecology
  - Cervix: Length, Width, Width
  - Uterus: Length, Width, Height, Volume, Uterus Sum, Endometrium Thickness
  - UT-L/CX-L
  - Ovary: Length, Width, Height, Volume
  - Follicle: Length, Width, Height, Average Diameter, Volume

- Obstetrics
  - Early OB: CRL, BPD, FL, HUM, HC, AC, Amniotic Fluid
  - 2nd-3rd Trimester: BPD, HC, OFD, FL, AC, AF, HUM, FTA, THD, Cervix L (Trace available), Ut A, Ovarian A, Ovarian V, FHR
  - Gestational Age
  - Estimated Fetal Weight
  - Fetal Biophysical Profile
  - Gestational Age and Fetal Weight OB tables
  - Weight Percentile

- Cardiology
  - LV Function (2D and M): Teichholz
  - Mitral Valve: MV VTI, MR VTI, MV E/A
  - Aorta Valve: AV VTI, AR DecT
- PAEDP
- RVSP
- CO(LVOT)
- Left Atrium Diam/Aorta Diam

- Urology
  - Prostate: Length, Width, Height, Volume
  - PPSA, PSAD
  - Scrotal Wall
  - Left/Right Ureter Diameter
  - Renal: Length, Width, Height, Volume
  - Bladder: Length, Width, Height, Volume, micturition volume
  - Left/Right Kidney: Length, Width, Height, Volume, Cortical Thickness
  - Left/Right Testis: Length, Width, Height, Volume
  - Left/Right Testicular: Length, Width, Height, Volume
  - Left/Right Epididymis: Aorta, Vein
  - Left/Right Testicular: Aorta, Vein

- Vascular
  - Carotid: CCA, ECA, ICA, Bulb, Vert A Stenosis D, Stenosis A, ICA/CCA
  - Lower Extremity Vein: C.Iliac V, Ex.Iliac V, Pop V, TP Trunk V, Peroneal V, P.Tib V, A.Tib V
  - Femoral Vein: CFV, SFV, DFV
  - TCD (Transcranial Doppler): ACA, MCA, PCA, AComA, PComA, Vertebral A, Basilar A

- Small Parts:
  - Thyroid: Length, Height, Width, Volume
  - Isthmus Height
  - Testis: Length, Height, Width, Volume
  - Left/Right Testicular: Length, Width, Height, Volume
  - Left/Right Epididymis: Length, Width, Height

- Breast Mass: Length, Height, Width, Nip. Distance, Skin Distance
- Left/Right Thyroid Cyst: Length, Width, Height, Volume
- Left/Right Epididymis: Aorta, Vein
- Left/Right Testicular: Aorta, Vein

6.3 Report
- Specific report template by application
- Editable value in report
- Images selectable
- Able to Export as PDF/RTF file

* Not all measurements are listed in this part; For more detailed information please refer to the Operators' Manual

7 Exam Storage and Management

7.1 Exam storage
- 120GB SSD. More than 74GB internal hard drive for patient data storage
- Capable to store up to approximate 354313 single frames
- Direct digital storage of single frame and cine 2D, color and Doppler.

7.2 Exam management
- iStation™ workstation dedicated for patient exam management
- Patient exam query/retrieve
- Support review of current and past exam
- New exam, Activate exam, End exam are available
- Support measurements and calculations on archived exam and images
- Export images as (BMP/JPG/TIFF/DCM/AVI format)
- Support backup/send to USB devices (hide patient information); support back up to DVD-RW media (ASUS DVD).

8 Connectivity
8.1 Ethernet Network Connection
- Cable connection
- Wireless connection: built-in wireless adaptor

8.2 DICOM 3.0
- DICOM basic (option)
  - Verify (SCU, SCP)
  - Print
  - Store
  - Storage Commitment
  - Media Exchange
- DICOM Worklist (option, HL7 supported)
- DICOM Query/Retrieve (option)
- DICOM Modality Performed Procedure Step - MPPS (option)
- DICOM OB/GYN structure report (option)
- DICOM Cardiac structure report (option)
- DICOM Vascular structure report (option)
- DICOM Breast Report (option)

8.3 iStorage (included in UltraAssist)
- Direct network storage tool between ultrasound system and personal computer

8.4 MedSight
- DICOM Basic is mandatory
- Needs to be installed on mobile terminal
- Support iOS 5.0 or above mobile terminal
- Transfer PC format images or clips from system to mobile terminal through WiFi

9 Transducers
9.1 Curved array
- C5-2s
  - Application: Abdomen, Gynecology, Obstetrics, Urology, Emergency
  - Bandwidth:
    2.1-5.1MHz (-6dB)
    1.5-5.6MHz (-20dB)
    - Number of Elements: 128
    - Biopsy Guide: NGB-015, multi angle, reusable
- C11-3s
  - Application: Small Part
  - Bandwidth:
    4-10MHz (-6dB)
    3-11.2MHz (-20dB)
    - Number of Elements: 128
    - Biopsy Guide: NGB-018, multi angle, reusable
- V11-3Ws
  - Application: Obstetrics, Gynecology, Urology
  - Bandwidth:
    4-10MHz (-6dB)
    3-11.2MHz (-20dB)
    - Number of Elements: 160
    - Biopsy Guide: NGB-004, single angle, reusable

9.2 Linear
- L12-4s
  - Application: Vascular, Small part, Nerve, MSK
  - Bandwidth:
    4.2-11.8MHz (-6dB)
    3-13MHz (-20dB)
    - Number of Elements: 192
    - Biopsy Guide: NGB-007, multi angle, reusable
- L14-6Ns
  - Application: Vascular, Small part, Nerve, MSK
  - Bandwidth:
    5.1-12.5MHz (-6dB)
    3.5-16MHz (-20dB)
    - Number of Elements: 192
    - Biopsy Guide: NGB-007, multi angle, reusable
- L14-6s
  - Application: Vascular, Small part, Nerve, MSK
10 Peripheral Devices and Accessories (Option)

10.1 Black/white digital video printer
   - SONY UP-D897, MITSUBISHI P95DW-N
10.2 Color digital printer
   - SONY UP-D25MD
10.3 Graph/text printer
   - HP Deskjet 1050 J410 series, HP Officejet 7000 wide format, HP Officejet Pro 8100
10.4 Wireless printer
   - HP Officejet Pro 8100
10.5 Footswitch
   - USB port: 971-SWNOM (2-pedal)
   - USB port: 971-SWNOM (3-pedal)
   - Wireless: WFREC-1(Receiver) + WFSW-2/WFSW-3 (Footswitch)
10.6 Barcode reader
   - Laser barcode scanner
   - Model: SYMBOL LS2208, DS6067

11 System Inputs and Outputs

11.1 Quality standards
   - ISO 9001
   - ISO 13485
11.2 Design standards
   - EN 60601-1 and IEC 60601-1
   - EN 60601-1-2 and IEC 60601-1-2
   - EN 60601-1-6 and IEC 60601-1-6
   - EN 60601-2-37 and IEC60601-2-37
   - EN 62304 and IEC 62304
   - EN 62366 and IEC 62366
   - EN ISO 17664 and ISO 17664
11.3 CE declaration

   TE7 system is fully in conformance with the Council Directive 93/42/EEC Concerning Medical Devices. The number adjacent to the CE marking (0123) is the code of the EU-notified body that certified meeting the requirements of Annex II excluding (4).
of the Directive.

NOTICE:
Not all features or specifications described in this document may be available in all probes and/or modes.
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