

Resona A20 Series

Diagnostic Ultrasound System

Datasheet

Release 1.6.5



1 System Overview

By revealing what matters, we empower you to embark on a transformative journey of discovery and understanding, enabling a deeper comprehension of human body.

Driven by this mission, Mindray is about to release the premium ultrasound system - Resona A20. Powered by the Acoustic Intelligence Technology platform, it has pushed ultrasound imaging performance to a new level, helping clinical experts to achieve accurate diagnosis and academic exploration. Together, we can explore new horizons and push the boundaries of medical knowledge.

It is applicable for the following applications: Abdomen (Diff), Obstetrics, Gynecology, Cardiology, Small parts (Thyroid, breast, etc), Urology, Vascular (carotid, jugular vein, upper and lower limb artery, upper and lower limb vein), Pediatrics, Nerve, Emergency & Critical, Pelvic Floor, MSK and Others.

1.1 Imaging Modes

- B-Mode
- THI and PSH (Phase Shift Harmonic Imaging)
- M-Mode/Color M-mode
- Free Xros M (Anatomical M-mode)
- Free Xros CM (Curved Anatomical M-mode)
- Color Doppler Imaging
- Power Doppler Imaging/Directional PDI
- PW (Pulsed Wave) Doppler
- CW (Continuous Wave) Doppler
- TDI (Tissue Doppler Imaging)
- UWN+ (Ultra Wideband Non-linear Plus) Contrast Imaging
- LVO (Left Ventricular Opacification)
- VLMI Contrast
- HiFR CEUS
- Super Resolution CEUS
- Volume CEUS
- Smart 3D (Freehand 3D)
- Real-time 4D
- iScape View (Panoramic Imaging)
- STE (Sound Touch Elastography)
- STQ (Sound Touch Quantification)
- Strain Elastography
- Endocavity STE
- High frame rate STE
- STVi
- USAT

- HRI+
- LTI
- TSSI

1.2 Features

- B-Mode
- THI and PSH (Phase Shift Harmonic Imaging)
- M-Mode/Color M-mode
- Free Xros M
- Free Xros CM
- Color Doppler Imaging
- Power Doppler Imaging and Directional PDI
- PW (Pulsed Wave) Doppler
- CW (Continuous Wave) Doppler
- iScape View
- Glazing Flow
- iClear+
- Smart Track
- HR Flow (High Resolution Flow)
- iBeam (Spatial Compound Imaging)
- iTouch (Auto Image Optimization)
- Zoom/iZoom (Full Screen Zoom)
- FCI (Frequency Compound Imaging)
- B steer
- ExFOV (Extended Field of View)
- HD Scope+
- SSC (Sound Speed Compensation)
- Clinical Measurement Package
- Smart OB
- Smart NT
- Smart HRI
- Smart Hip
- Smart Calc
- Smart Trace
- CPP (Color Pixel Percentage)
- Smart 3D
- Color 3D
- Real-time 4D
- 3D-Print Format
- STIC (Spatial-Temporal Image Correlation)
- iPage+ (Multi-Slice Imaging)
- SCV+ (Slice Contrast View)
- iLive
- Niche
- Smart Planes CNS

- Smart Planes FH
- Smart Face
- Smart ICV
- Smart Volume
- Smart V Trace
- Smart Fetal HR (Fetal Heart Rate)
- Smart Scene 3D
- Smart Scene
- Smart ERA
- Smart FLC
- Smart Pelvic
- IVF
- IMT
- RIMT (RF-Data based IMT)
- R-VQS (RF-Data based Quantitative Analysis on Vessel Stiffness)
- TB Flow
- V Flow
- Arterial PWV Analysis
- Ultra-Micro Angiography
- Smart Breast
- Smart Thyroid
- UWN+ Contrast Imaging
- LVO (Left Ventricular Opacification)
- VLMI Contrast
- HiFR CEUS
- Contrast Imaging QA (Quantitative Analysis)
- Super Resolution CEUS
- Super Resolution CEUS QA
- Volume CEUS
- TCMR
- 2D CEUS CPM (Chrono-Parametric Mode)
- 3D CEUS CPM (Chrono-Parametric Mode)
- STE (Sound Touch Elastography)
- STQ (Sound Touch Quantification)
- Strain Elastography
- Endocavity STE
- High frame rate STE
- Abdominal STVi
- Superficial STVi
- M-Ref. Live
- M-Ref. C&E
- Abdominal USAT
- Superficial USAT
- HRI⁺
- LTI
- TSSI
- ECG function

- ECG function
- AutoEF
- Tissue Doppler Imaging (Include TVI, TVD, TVM, TEI)
- TDI QA (TDI Quantitative Analysis)
- Tissue Tracking QA
- FH Tissue Tracking QA
- Stress Echo
- Ultrasound Fusion Imaging
- Endocavity Fusion Imaging
- Fusion RESP
- uHIT Evaluation
- uHIT Navi
- Needle Navigation
- iNeedle (Needle Visualization Enhancement)
- iScanHelper
- iWorks (Auto Workflow Protocol)
- DICOM
- UltraAssist (Off-line software)
- iStorage

2 Physical Specification

2.1 Dimension and Weight

- Dimensions (in folded status):
The control panel and the monitor are in the lowest position, and the monitor is placed horizontally
 - Depth (mm): 1035±20
 - Width (mm): 518±10 (main unit)/548±10 (control panel)/650±20 (monitor)
 - Height (mm): 1090±20
- Dimensions (in unfolded status):
The control panel and the monitor are in the highest position, and the monitor is placed vertically
 - Depth (mm): 924±20
 - Width (mm): 518±10 (main unit)/548±10 (control panel)/650±20 (monitor)
 - Height (mm): 1919±30
- Weight (Standard configuration without optional accessories such as probes and batteries):
 - With Assisted Moving Mode: 160±15kg
 - Without Assisted Moving Mode: 138±10kg

2.2 Electrical power

- External Power
 - Voltage: 100-240 V-
 - Frequency: 50/60 Hz
 - Power consumption: 1170 VA/600W
 - Auxiliary output power: 240 VA
- Internal Power (Built-in Battery)
 - Rechargeable lithium battery
 - Battery voltage: DC 14.4 V
 - Battery capacity: 6600mAh (single battery)
 - Support the ultrasound system for normal working for no less than 60 minutes
 - Empty battery recharged to full in less than 6H
 - Light indicator for battery in standby status

2.3 Operating Environment

- Ambient temperature: 0-40°C
- Relative humidity: 20%-85% (no condensation)
- Atmospheric pressure: 700hPa-1060hPa

2.4 Storage & Transportation Environment

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

3 User Interface

3.1 Monitor

- 27-inch high resolution color LED monitor
- Resolution: 2560x1440
- Viewing angle (Up/down/left/right): 178 degrees
- Digital on screen display of brightness and contrast controls
- Tilt/Rotate independent adjustment
- Tilt angle range: 20±5° degrees (backward), 85±5° degrees (forward)
- Rotate angle range: 90±5° degrees (to left), 180±5° degrees (to right)

3.2 Multi-directional articulating monitor arm

- Rotate angle: 90±5 degrees (to left); 180±5 degrees (to right)
- From front to back: arm: 468±20mm
- From bottom to top: 320±20mm

3.3 Touch screen

- 15.6-inch high sensitivity anti-glare color touch screen
- Resolution: 1920*1080
- Digital brightness and contrast adjustment through preset
- Viewing angle (Up/down/left/right): 170 degrees
- Angle adjustable range: 15-81 (±5) degrees
- Support either hand writing or with gloves on
- Editable touch-screen buttons: long press to add, delete or move the buttons.
- Short-cut switch of latest used transducer & exams
- Support image mapping on touchscreen.

3.4 Touch Bar

- Displays the product model and battery capacity.
- With assisted moving mode
 - When the electrically assisted moving function is not activated: Customized advanced function entries, which can automatically be switched according to the exam mode.
 - When the electrically assisted moving function is activated: System prompts of electrically assisted moving.
- Without assisted moving mode Customized advanced function entries, which can automatically be switched according to the exam mode.

3.5 Floating control panel

- Full-sized, backlit QWERTY keyboard
- 6 programmable keys
- 8-segment TGC control
- Independent rotation and up/down, front/back adjustment

- Left/right rotate angle range: 90±5 degrees
- Left/right: 250±20 mm
- Front/back: 200±20 mm
- Down/up with electric lifting arm range: 200±20 mm

3.6 Transducer port and holder

- Transducer ports: 5 active ports, and 1 pencil transducer port
- Support active transducer with indicator on
- Transducer holder: 6, plus 1 dedicated endocavity transducer holder
- Automatic probe lamp
- The cover of the probe panel can be removed by hand for wire arrangement and dust-proof.

3.7 Wheels

- With Assisted Moving Mode
 - 2 straight casters, with diameter of 173mm
 - 2 total-lock casters, with diameter of 150mm
 - Central brake: total lock
- Without Assisted Moving Mode
 - 1 straight caster, with diameter of 125mm
 - 3 total-lock casters, with diameter of 125mm

3.8 Brake pedal

- With Assisted Moving Mode
Uses for locking or unlocking the front two straight casters.
- Without Assisted Moving Mode
 - Left pedal: Locks/unlocks the three total-lock casters.
 - Right pedal: Enables/locks the straight casters.

3.9 System boot-up

- Boot-up from shut-down: ≤ 90 sec
- Shut-down: < 60 sec

3.10 Language support

- Support multi-language user interface, keyboard input, and user manuals.
- User interface: English, Chinese, German, Spanish, French, Italian, Portuguese,

Russian, Czech, Polish, Turkish, Finnish, Danish, Icelandic, Norwegian, Swedish, Hungarian, Serbian, Dutch, Lithuanian, Greek, Thai, Ukraine

- Keyboard input: English, Chinese, German, Spanish, French, Italian, Portuguese, Russian, Czech, Polish, Icelandic, Norwegian, Swedish, Finnish, Turkish, Danish, Hungarian, Serbian
- User manual: English, Chinese, Russian, German, Spanish, French, Italian, Portuguese, Turkish, Polish, Serbian, Dutch, Swedish, Finnish, Hungarian, Lithuanian, Slovakian, Romanian, Bulgarian

* Not all items are listed in this part; For more detailed information, please refer to User Manual

3.11 Other Features

- Anti-virus software: ClamAV
- Audio speakers: Stereo audio speakers
- Storage tray
- Built-in DVR
 - Built-in digital video recorder.
 - Screen display and voice information are recorded and stored in the built-in hard disk
 - Save space and is a useful tool for education and memory
 - Max storage length each time: 60 min
- LAN Accessory
- Ultrasound Docking Station
- The ultrasound system can be disinfected.

4 Technical Specifications

4.1 AIT Platform

- The AIT (Acoustic Intelligence Technology) Platform has achieved significant advancements in acoustic and electrical data, imaging algorithms, and system computing power. High-quality acoustic and electrical data are ensured by the AFM Transducer and FreeWave Tx/Rx Technology.
- Additionally, FreeBeam Beamforming and FreeIQ Intelligent Image Processing

technology are dedicated to faithfully revealing tissue details.

- AFM Transducer Technology
 - Acoustic Boost Technology
 - Free Band Technology
 - Matrix Thin Slice Technology
- FreeWave Tx/Rx Technology
 - Arbitrary Wave Generator
 - UHF Sampling
 - Up to 16,777,216 channels
- FreeBeam Beamforming Technology
- FreeIQ Processing Technology
 - Intelligent Pixel Compounding
 - Intelligent Image Enhancement
- Hyper Parallel Computing
- Sound Speed Compensation (SSC)
- Dynamic Pixel Focusing (DPF), digital variable aperture and dynamic apodization, A/D \geq 16 bit
- Line density per frame \geq 512 ultrasound lines
- 2D gray scale \geq 256

4.2 Transducer specification

- Single crystal and Matrix etc.
- Supported transducer type
 - Curved array
 - Linear array
 - Phased array
 - Endocavity
 - Bi-Plane
 - 4D Volume
 - 4D Endocavity

5 Imaging Parameters

5.1 Advanced imaging technologies

- iBeam (Spatial Compound Imaging)
Permits use of multi-angle scanning to form a single image, so as to improve image contrast and resolution. Supports Spatial Compound Imaging with 3-level adjustment and up to 5-beam steer
- iClear⁺ (Speckle Suppression Imaging)
Available in 2D, Contrast, and 3D/4D mode. 7-level adjustment.
- iTouch (Auto Image Optimization)
Automatic image parameters optimization of B, Color, PW, Contrast

modes, to improve the adjustment efficiency. 9-level adjustment in B and Contrast mode.

- B: Gain, TGC
- Color: Gain
- Power: Gain
- PW: Scale, PRF, Wall Filter
- Contrast: Gain
- TSI
Multiple imaging conditions are available according to different tissue characteristics (general/muscle/fluid/fat)
- Smart Track
 - Available on linear transducers
 - Enable the function under Color/Power mode. The angle and position of the ROI are automatically adjusted in real time, so as to save time from manual adjustment and improve the scanning efficiency.
- HD scope⁺
By processing channel data multiply and retrospectively, HD Scope⁺ can improve the detail information and image contrast on specific area maximally.
- iNeedle
It is used in needle-guided biopsy, which dynamically enhance the needle display in ultrasound image. Support dual-screen display of images before and after enhancement in real-time, and adaptive angle correction.
 - Available on all linear transducers (except ELC13-4U)
 - Needle direction: auto, left, right
 - B/iNeedle: on/off
- Zoom: Image magnification, supports spot zoom, res zoom, and pan zoom. Magnification \geq 10x
- iZoom: Full-screen magnification by one click in real time, supports \geq 2 magnification modes.
- Glazing Flow
 - An advanced image processing technology to demonstrate the 2D blood flow with 4D visualization for easy definition and clarity.
 - Available in Color/Power mode.
 - To stereoscopically display the blood flow.

- QSave
 - Quick save image parameter settings after image adjustment done
 - Support Save, Save as, Restore
- Auto Merge
 - Dual B image merge for linear array transducer
- Adjustable Acoustic output power
 - Display MI/TI (TIB, TIC, TIS) in real time.
 - Can be adjusted in B, Color/Power, M, PW, CW, TDI modes etc.

5.2 B-mode

- Display formats: Single, Dual, Quad
- iClear⁺: Off, 7 steps
- iBeam: Off, 3 steps
- iTouch: on/off
- Dual Live: image compared by dual display in real time
- Image quality
 - Supports fundamental frequency conversion ≥ 6 segments (depends on transducers)
 - Supports THI (Tissue Harmonic Imaging) and PSH (Phase Shift Harmonic Imaging), harmonic frequency conversion ≥ 5 segments (depends on transducers)
- B steer: 5 levels, available on linear transducers
- ExFOV
 - Available on all transducers.
 - Range: Off, 1-2
 - For liner transducer: after ExFOV is enabled, the image is displayed as a trapezoid. The maximum steer angle is 12°
 - For convex transducer: after ExFOV is enabled, the scanning angle will be extended.
- Depth: 30 levels, 0.5-50cm (dependent on transducer)
- Maximum display Depth: ≥ 50 cm
- SSI Sound Speed Indicator
- Supports FCI (Frequency Compound Imaging)
- Frame rate (max): 440 f/s
- Acoustic output power: dependent on transducer

- TGC: 8 pods on control panel
- LGC: 8 segments on touch screen
- Dynamic range (visible and adjustable): 30-350 (dependent on transducer)
- Gain: 0-100, 1/step
- The Gain of B/M/D mode is visible and independently adjustable, ≥ 100 dB
- FOV Size: continuously adjustable
- FOV Position: continuously adjustable
- Line density: L, M, H, UH
- Persistence: 0-7 levels
- Horizontal Scale: on/off
- L/R flip and U/D flip: on/off, Visually displayed
- Rotation: 0° , 90° , 180° , 270° , Visually displayed
- TSI: general/muscle/fluid/fat
- Gray Map: 8 types
- Tint map: off, 8 types
- Smooth: 0-6 levels
- HD Scope⁺: on/off
- SSC (Sound Speed Compensation): on/off
- Free view: adjustable (depends on transducers)
- Dehaze: 0-5
- Ref Lines: on/off (under GYN and Pelvic Floor exam mode when using endocavity transducer)
- V 1:1: on/off (available with linear transducer and under dual-split mode)
- Edge Enhancement: 0-6
- XL View: on/off
- ZoneVue: Dynamically global focus, supporting precise adjustment of 7 focal fields (varies with probes)

5.3 THI and PSH

- Patent PSH technology, obtains purer harmonic, better contrast resolution, higher SNR, exceptional high frequency harmonic
- iClear⁺ available
- Image quality: HPen/HGen/HRes or HPen/HPen-FFR/HGen/HRes/HRes-FFR (depends on transducers)

5.4 HD Scope⁺

- Empowered by the FreeBeam beamforming technology from AIT platform, HD Scope⁺ focuses on the ultrasound image of the target area for image optimization and enhancement, facilitating accurate clinical diagnosis.
- Gain: 0-100, 1/step
- ROI range: random adjustable
- ROI position: random adjustable
- Image quality: 3 levels
- Persistence: 0-7,1/step
- Dynamic Range: same as B
- Gray Map: 1-8, 1/step
- Tint Map: off, 1-8, 1/step
- iClear⁺: Off, 1-7, 1/step
- iBeam: Off, 1-3, 1/step
- Line Density: L, M, H, UH
- Smooth: 0-6, 1/step
- Intensity: 1-3,1/step
- zoom: 0.8-10
- Dehaze: 0-5, 1/step
- Edge enhancement: 0-6,1/step
- A.power: same as B
- Dual Live: on/off
- Two Windows: on/off

5.5 M-mode

- Display formats: V2:3, V3:2, V3:1, H2:3, FULL (V: vertical, H: horizontal)
- Supports B/M mode dual display and M mode full screen display
- Color M-mode available
- Acoustic output power: same as B
- Depth: same as B
- Dynamic range: 30-180, 5/step
- Gain: 0-100, 1/step
- M sweep speed: 6 steps
- M soften: 0-4, 1/ step
- Tint map: off, 8 types
- Gray Map: 8 types
- Edge enhancement: 0-3, 1/ step

5.6 Color Doppler Imaging

- Display mode: B/C, B/C/M, B/C/PW
- Dual live
- Image quality: supports Color frequency conversion ≥ 6 segments (depends on transducers)

- HR Flow: High Resolution Flow provides better image quality and flow sensitivity
- Max velocity: 641.7cm/s
- Steered angle $\geq \pm 30$ degrees, available on linear transducers, and the ROI can automatically be adjusted according to the flow direction of the probe
- The linear probe supports quick steer
- Max frame rate: 247 f/s
- Acoustic output power: same as B mode
- Gain: 0-100, 2/step
- ROI size/position: adjustable
- Scale: max. 30 steps
- Baseline: adjustable
- Wall filter: 8 steps, 0-4313Hz
- PRF: 0.1-20.8kHz
- Packet size: 0-3, 1/ step
- Flow state: L/M/H
- Smooth: 0-6, 1/ step
- B/C align: on/off
- Priority: 0%-100%, 1%/step
- Color map: V0-V10; VV0-VV9
- The velocity (V) and velocity variance (VV) can be displayed
- Invert: on/off
- Auto Invert: on/off
- Persistence: 0-6, 1/ step
- Velocity tag: on/off
- You can add tags to mark different velocity boundaries, to observe flow distribution and velocity gradient
- Line density: L/M/H/UH
- iTouch: on/off
- Smart track: on/off, available on linear transducers
- Glazing flow: on/off, L/M/H
- Glazing flow: Use the illumination model to render the 2D blood flow data to create a stereoscopic effect and enhance the mobility of the dynamic 2D blood flow.
- C ExFov: on/off, available on linear transducers
- Flash Control: 0-6, 1/step
- Artifact Control: on/off
- Hide Color: on/off
- Filter Mode: 2.0, 1.9, 1.8, 1.7, 1.6, 1.5, IIR1, IIR2, available on phased transducers

5.7 Power Doppler Imaging

- Display mode: B/Power
- Dual live
- HR Flow: High Resolution Flow provides better image quality and sensitivity
- Image quality: depends on transducers
- Acoustic output power: same as B
- Dynamic range: 10-70, 5/step
- Gain: 0-100, 2/step
- ROI size/position: adjustable
- Steered angle $\geq \pm 30$ degrees, available on linear transducers, and the ROI can automatically be adjusted according to the flow direction of the probe
- The linear probe supports quick steer
- Scale: max. 30 steps
- Wall filter: 8 steps
- PRF: max. 20.8kHz
- Packet size: 0-3, 1/ step
- Flow state: L/M/H
- Smooth: 0-6, 1/ step
- B/C align: on/off
- Priority: 0%-100%, 1%/step
- Color map: P0-P3, dP0-dP3
- Supports Power and directional Power Doppler
- Persistence: 7 levels
- Line density: L/M/H/UH
- Invert: on/off
- iTouch: on/off
- Smart track: on/off
- Glazing flow: on/off, L/M/H
- Glazing flow: Use the illumination model to render the 2D blood flow data to create a stereoscopic effect and enhance the mobility of the dynamic 2D blood flow.
- C ExFov: on/off, available on linear transducers
- Flash Control: 0-6, 1/step
- Artifact Control: on/off
- Hide Color: on/off
- Filter Mode: 2.0, 1.9, 1.8, 1.7, 1.6, 1.5, IIR1, IIR2, available on phased transducers

5.8 UMA (Ultra-Micro Angiography)

- The breakthrough of traditional Doppler imaging bottleneck. It realizes ultra-high

spatial resolution and flow sensitivity for super subtle and slow flow imaging.

- Available under B, Color, Power mode.
- Supports submodes of cUMA, pUMA, sUMA.

Note: Other parameters are the same as those of the Color/Power modes

5.9 PW/CW Mode

- Includes PW (Pulsed Wave Doppler) mode or CW (Continuous Wave Doppler) mode
- Image quality: supports spectral frequency conversion ≥ 4 segments (depends on transducers)
- Automatic Spectrum Measurement
- Display formats: V2:3, V3:2, V3:1, H2:3, FULL (V: vertical, H: horizontal)
- Display modes: B, PW, B/PW, B/C/PW, B/PW
- Image Quality: adjustable
- PW velocity:
 - max. 835.5 cm/s (depends on the correction angle)
 - min. 0.01cm/s
- CW velocity:
 - max. 3850 cm/s
 - min. 0.01cm/s
- Sample volume size: 0.5-30mm, continuously adjustable (the minimum sampling volume of LM24-6WU is 0.3 mm.)
- Baseline: 9 steps
- PW steered angle $\geq \pm 30$ degrees, available on linear transducers
- The linear probe supports quick steer
- Volume: same as B
- PW PRF: 0.4-19.5kHz
- CW PRF: 0.3-104.2kHz
- Gain: 0-100, 2/step
- Dynamic range: 24-72, 2/step
- Sweep speed: 6 steps
- Wall filter: 0-8
- Invert: on/off
- Auto invert: on/off, available on linear transducers
- Angle correction: -89-89 degrees, 1/step
- Quick angle: 0, -60, 60 degrees
- Duplex/Triplex: On/off

- HPRF: On/off
- iTouch: On/off
- Gray map: 10 types
- Tint map: Off; 8 types
- Time/frequency resolution: 0-6, 1/ step
- Auto calc: on/off
- Auto calc cycle: 1-5, 1/ step
- Trace Sensitivity: -3, -2, -1, 0, 1, 2, 3
- Trace Smooth: off, 4 level
- Trace area: above, below, all

5.10 Free Xros M

- Three sampling lines, can be rotated by 360 degrees to acquire Free X Ros M images on real-time and frozen 2D images.
- Display formats: V2:3, V3:2, V 3:1, H2:3 (V: vertical, H: horizontal)
- Color Free Xros M available
- Up to 3 lines
- Display all lines
- Sweep speed: 6 steps
- M Tint map: off, 8 types
- Gray Map: 8 types

5.11 Free Xros CM

- TDI based Free Xros CM function, synchronous display of myocardial tissue segmental motion synchronism and motion phase contrast
- Display formats: V2:3, V3:2, V 3:1, H2:3 (V: vertical, H: horizontal)
- Sweep speed: 6 steps
- Tint map: off; 8 types
- Gray Map: 8 types
- Edit, undo, delete function for curved line

5.12 TDI Imaging

- Imaging modes: TVI, TEI, TVD, TVM
- Spectral Doppler frequency: ≥ 5 (depends on transducers)
- Max frame rate: 443 f/s
- Tissue Velocity/Energy Imaging (included in TDI option)
 - Available on phased array transducers
 - Dual live: side by side displays B and B+TVI

- PRF: 0.1-2.6kHz
- Acoustic output power: same as B mode
- Gain: 0-100, 2/step
- Dynamic range: 10-70, 5/step (TEI only)
- ROI size/position: adjustable
- Scale: max. 30 steps
- Baseline: -8 - 8, 1/step (TVI only)
- Wall filter: 8 steps
- Packet size: 0-3,1/ step
- Tissue state: L/M/H
- Smooth: 0-6, 1/ step
- B/C wide: on/off
- Priority: 0%-100%, 1%/step
- Color map: 10 types (TVI), 8 types (TEI)
- Invert: on/off
- Persistence:0-6, 1/ step
- Velocity tag: on/off (TVI only)
- Line density: L/M/H/UH
- Image quality: 2 levels
- Hide Color: on/off
- Tissue Velocity Doppler (included in TDI option)
 - Available on phased array transducers
 - Display formats: V2:3, V3:2, V3:1, H2:3, FULL, Duplex/Triplex (V: vertical, H: horizontal)
 - Sample volume size: same as PW
 - Sample gate depth: adjustable
 - Sample volume depth: continuously adjustable
 - Velocity: 712.96cm/s
 - Scale: 30 levels
 - PRF: 0.7-23.1kHz
 - Gain: 0-100, 2/step
 - Dynamic range: 24-72, 2/step
 - Sweep speed: 6 steps
 - Wall filter: 10 steps
 - Invert: on/off
 - Angle correction: -89-89 degrees, 1/ step
 - Quick angle: 0, -60, 60 degrees
 - Gray map: 10 types
 - Tint map: Off; 8 types
 - Image quality: 2 levels

- Time/frequency resolution: 0-6, 1/ step
- Tissue Velocity Motion (included in TDI option)
 - Display formats: V2:3, V3:2, V 3:1, H2:3, FULL (V: vertical, H: horizontal)
 - Acoustic output power: same as B
 - Gain: 0-100, 2/step
 - M sweep speed: 6 steps
 - Smooth: 0-6, 1/ step
 - Color Map: 10 types
 - Image quality: 2 levels
 - Persistence: 0-6, 1/ step
 - Packet size: 0-3, 1/ step
 - Priority: 0%-100%, 1%/step
 - Velocity tag: on/off

5.13 3D/4D

- Supports Freehand 3D (linear, convex, phased transducers)
- Supports real-time 4D and Color 3D (abdominal volume and endocavity volume transducers)
- Rendering modes: Surface, Min, Max, X-ray, iLive
- Supports multi virtual light sources: Point, Parallel, Torch etc. and free combination of light sources is supported.
- Supports off-line processing of 3D/4D data, and adjusts imaging before storage of stored data.

5.14 Smart 3D

- Acquisition preparation
 - Acquisition Method: Rocked, Linear
 - Reset VOI/Invert VOI
- Reset: all, orientation, reset curve
- Active quadrant: A, B, C, VR
- VR orientation: 0°, 90°, 180°, 270°
- Inversion: on/off
- Accept VOI: on/off
- Flip: flip VR
- Sync: synchronize VR with selected plane
- Render modes: Surface, Min, Max, iLive, X-ray
- iLive: Classic, Int Point, Ext Point, Parallel, Torch, 3-Light, User1-2

- View direction: down/up, left/right, front/back
- Threshold: 0%-100%, 1%/step (only on VR)
- MagiClean: Off/ Low/ Mid/ High/ Max
- Depth VR: Off/ Black/ Cyan/ Blue/ Rose
- Thickness: 0-30mm (only on MPR)
- Surface enhance: 0-7, 1/step
- Opacity: 0%-100%, 5%/step (only on VR)
- Smooth: 0-10, 1/ step
- Tint: off; 8 types
- Brightness: 0%-100%, 2%/step
- Contrast: 0%-100%, 2%/step
- VR fusion: Set the main render mode and sub render mode and the mix ratio of the two render modes
- Orientation Assistance: On/Off

5.15 4D

- Available on all volume transducers
- Static 3D and 4D
 - 4D frame rate: max. 80 vps
 - 3D iClear: Off; 7 steps
 - VR Refine: Off, 1-7, 1/step
 - VR: on/off, select volume rendered image
 - MPR: on/off, select A, B and C plane
 - Display formats: MPR only/ asymmetric
 - VOI: on/off
 - Reset: all, orientation, reset curve
 - Active quadrant: A, B, C, VR
 - VR orientation: 0°, 90°, 180°, 270°
 - Inversion: on/off
 - Accept VOI: on/off
 - Flip: flip VR
 - Sync: synchronize VR with selected plane
 - Render modes: Surface, Min, Max, X-ray, iLive
 - iLive: Classic, Int Point, Ext Point, Parallel, Torch, 3-Light, User1-2
 - View direction: down/up, left/right, front/back
 - Threshold: 0%-100%, 1%/step (only on VR)
 - Thickness: 0-30mm (only on MPR)
 - MagiClean: Off/ Low/ Mid/ High/ Max

- Depth VR: Off/ Black/ Cyan/ Blue/ Rose
- Hyaline: 0%-100%
- Opacity: 0%-100%, 5%/step (only on VR)
- Smooth: 0-10, 1/ step
- Brightness: 0%-100%, 2%/step
- Contrast: 0%-100%, 2%/step
- Tint: off; 8 types
- Surf. Enhance: 0-7, 1/ step
- VR fusion: Set the main render mode and sub render mode and the mix ratio of the two render modes
- Orientation Assistance: On/Off
- Adjust Frame
- Auto Play: stop, x1, x2, x3, x1/2, x1/3

5.16 Tools

- Eraser
 - Eraser: Soft eraser/ hard eraser,
 - Eraser Diameter: 8-80, 1/step
- Edit
 - Cut (area selection): polygon, contour, rectangle, line
 - Undo: undo, undo all
- 3D Layout
 - 3 Slice
 - Niche
 - Reset: All, Reset Curve, Reset Ori
 - Active Quadrant: A, B, C, Niche
 - Niche Views: Inner, Outer
- Auto rotation
 - Rotation control: play, single loop, loop
 - Direction: left/right, up/down
 - Position: Set Start/Set end
 - Range: 30°, 45°, 60°, 90°, 120°, 180°
- 3D Reference Point
 - Enable the operator to define one or more reference points on MPRs, which are then projected to VR image; helpful for the operator to better understand the corresponding spatial relations of VR image and MPRs.
 - Display: Point only, H line, V line
 - Delete All
 - Hide All
 - Orientation Assistance: On/Off

- 3D-Print Format
 - It is used to export 3D-print format file. e.g. stl, obj, ply, off, 3mf, xyz

5.17 Color 3D

Provides more stereoscopic blood flow signals. It is mainly used in blood perfusion tissues in some complex space to make blood flow observation visually. 3D imaging in color and power modes is supported.

5.18 Niche

Compiles the 3 MPRs together according to their relative positions, to provide a much clearer interior anatomical structure for diagnosis

5.19 STIC

Spatio-Temporal Imaging Correlation, based on the movements of the fetus, rebuilt and show the anatomical structure within a physical movement by using the interconnection between the time and the space, for better diagnosis in 3D/4D function.

5.20 iPage+

- Multiple tomographic parallel slices imaging, to display volume image with slices, for better display the spatial relationship of tissue and lesion.
- Displays ≥ 25 images in different planes on the screen at the same time, and the slice spacing is adjustable (0.5 mm-10 mm).

5.21 SCV+

Slice Contrast View Plus, includes SCV imaging and CMPR functions. SCV imaging can reduce speckle noise and improve contrast resolution as well as enhance signal-noise ratio, which helps in discovering diffuse pathology in organs. CMPR is to obtain a curved sectional image by dissecting the 4D image, so as to observe the curved tissue structure. In clinical application, it is often used to observe the curved anatomy in stretching such as fetal spine.

5.22 iLive

- An advanced rendering mode for realistic volume imaging display
- Brings a better imaging experience by adding lighting rendering effect to the

traditional way, allowing human tissue texture to be revealed more clearly.

- Supports Hyaline function.

5.23 Smart Planes CNS

- A professional screening software of the fetal central nervous system. Automatically detect the standard CNS scanning planes, and calculate the anatomical parameters for each planes. It is used to assist doctors in diagnosis of fetal craniocerebral diseases in a more efficient and standardized way.
- Automatically acquire multiple standard cranial sections and acquire ≥ 4 commonly used measurement indicators
- Automatically display the standard planes: TCP, TTP, MSP and TVP
- Auto comment supported: A(anterior), P(posterior), L(Left), R(Right), U(Up), D(down), CSP, T, CH, CV, CM, LV on TCP, TTP, MSP and TVP
- Auto measurement supported:
 - TCD and Cist Maga (CM) on section TCP;
 - BPD, OFD and HC on section TTP;
 - LVW on section TVP
- Support editing measurement results
- Hide/show measurement results
- Support comment and bodymark on sectional plane

5.24 Smart ICV

- Smart intracranial volume, an advanced tool to detect fetal cranial tissue, provides automatic calculation of fetal intra-cranial volume for advanced fetal CNS study.
- Supports modifying the contour by trace, adaptive trace, control point editing, and recalculate the volume.

5.25 Smart Planes FH

- Detect automatically left ventricular outflow tract view, right ventricular outflow tract view, LAV-DA view, 3VV-T view and stomach bubble view
- Automatically acquire ≥ 6 standard fetal heart sections.

5.26 Smart Face

Allows to recognize fetal face and remove the shading obstacle data automatically, then display the face in an optimal viewing angle. At the same time, you can adjust the display direction of the fetal face by one click, and support forward/reverse rubber erasing.

5.27 Smart Volume

Fast volume calculation tools to calculate the volume of tissue structure or lesions

- Smart-V ROI: Manual ROI on A, B, C plane separately
- Smart-V Trace: Manual trace on A, B, C plane separately
- Smart-V Vocal/Smart-V Parallel: Trace contours on each slice separately

5.28 Smart ERA

- A fully automated endometrial receptivity analysis tool, Enables endometrium receptivity assessment with automated workflow.
- Supports automatic measurement of the segmented results.

5.29 iScape View

- Larger field of view than traditional imaging techniques.
- Acquisition method: B and Power
- Supports speed and direction indicator
- Review images during acquisition
- The splicing length of iScape is not less than 301 cm
- Rotation: 0-355 degrees, 5/step and zooming

5.30 UWN+ Contrast Imaging*

- UWN+ (Ultra Wideband Non-linear Plus) contrast imaging technology, which provides exceptional contrast agent detecting capability, not only extracts second harmonic, but also non-linear fundamental signals
- Supports Convex, Linear, Volume, Intracavity, Bi-plane probe types. Available on SC7-1U, C11-3U SC6-1GU, SC9-2U, LM18-5WU, SL10-3U SLM10-3U, LM24-6WU, DE10-3WU, SD8-1U, SV10-2U, ELC13-4U
- Micro Flow Enhancement (MFE) available
- Timer1: on/off

- Timer2: on/off
- Pro capture: captures prospective image less than 480s preset table
- Retro capture: captures retrospective image less than 120s preset table
- Dual live: side by side displays tissue image and contrast image
- MFE: on/off
- MFE period: 0.1s, 0.2s, 0.4s, 0.6s, 0.8s, 1.0s, MAX
- Destruct: instantly destroy contrast bubbles
- Destruct AP: -30-0 dB, 0.3/step
- Destruct time: 500-2000 ms
- iClear: off; 7 steps
- Mix: mix contrast image with tissue image
- Mix map: 7 types, available when Mix mode is active
- Persistence: 8 steps
- Dynamic range: same as B mode
- Gray map: 8 types
- Tint map: off; 8 types
- Supports U/D Flip and L/R Flip
- Rotation: same as B mode
- CEUS Position: on/off
- Line density: L/M/H/UH
- FOV: on/off
- FOV size/position: continuously adjustable
- ExFov: off, 1-2, 1/step
- Gain: 0-100, 1/step
- iTouch: on/off, -8-8, 2/step
- Image quality: 3 levels
- Smooth: 0-6, 1/step
- Enhance: on/off
- Markline: on/off
- HiFR CEUS: on/off
- LGC: 8 points
- Contrast Agent: Sonazoid/SonoVue
- *This ultrasound series is designed for compatibility with commercially available ultrasound contrast agents. Because the availability of these agents is subject to government regulation and approval, product features intended for use with these agents may not be commercially marketed nor made available before the contrast agent is

cleared for use. Contrast related product features are enabled only on systems for delivery to an authorized country or region of use. Mindray medical systems makes no claims concerning the safety or effectiveness of contrast agents.

5.31 Contrast Imaging QA

- Support Time-Intensity Curve analysis
- Table display: display data in table
- Freehand ROI: manually deploy ROI on the cine
- Up to 8 ROIs
- Fit curve
- Raw curve
- Motion tracking: Reduce the effect of tissue movement
- Export: export current data as CSV format file

5.32 Super Resolution CEUS

- SR CEUS enables high-resolution imaging at the micron level. It provides accurate quantitative indicators for tumor diagnosis and clinical treatment plans such as liver and breast. And it shows great research potential for the changes in the microcirculation.
- Supports the following parameter mode:
 - Density: it displays vessel contour information that is calculated based on multiple positioning and accumulation of microbubbles.
 - Velocity: it displays the estimated velocity at each position, based on the microbubble tracking results.
 - Direction: it displays the estimated direction at each position, based on the microbubble tracking results.
 - Bi-Direction (Vascular and Density Direction): it displays results of the vessel density map and flow direction map in combination.

5.33 Super Resolution CEUS QA

It is used to calculate the pixel distance and pixel ratio of the vessel within the ROI to obtain the quantitative information of distance, density, and ratio, etc., based on the results of certain image frames acquired by the "Super Resolution CEUS" mode.

5.34 HiFR CEUS

It enables a higher CEUS frame rate for better visualization of contrast agent perfusion.

5.35 LVO

- Only available in cardiac exam mode of the SPM6-1U probe
- Dedicated left ventricle contrast imaging tool

5.36 VLMI Contrast Imaging

- Only available in cardiac exam mode of the SPM6-1U probe
- Enhances echo reflection by using contrast agent to perform myocardial analysis based on echocardiography technique

5.37 Volume CEUS

- Available on SD8-1U, and DE10-3WU
- Provides stereoscopic injection imaging of contrast in 3D/4D to more stereoscopically present perfusion information from contrast microbubbles. Mainly used for Hysterosalpingo contrast sonography and other applications to judge the patency.

5.38 CEUS Chrono-Parametric Mode

- To intuitively visualize the difference between the target lesion and surrounding tissue, CCPM depicts temporal information as a color coded map superimposed on the CEUS image.
- Tissue image and contrast image can be displayed simultaneously.
- Available under 2D CEUS CPM and 3D CEUS CPM mode.
- 2D
 - Background: set the background image for the color coding of arriving time.
 - Motion Tracking: enable or disable motion tracking compensation.
 - Transparency: adjust the transparency for the color coding of arriving time.
 - Threshold: adjust the threshold of the contrast agent arriving time.
- 3D

- Threshold: adjust the threshold of the contrast agent arriving time.
- Map: Adjust the map used for arrival time color coding.
- Duration: Adjust the total duration of the spectrum.

5.39 TCMR

Tissue-Contrast Mix Rendering, a mixed rendering mode with both contrast perfusion and tissue information for intuitive display of the spatial relationship and helpful for easy positioning and lesion diagnosis.

5.40 STE (Sound Touch Elastography Imaging)/STQ (Sound Touch Quantification Imaging)

- Supports Convex, Linear, Intracavity, Bi-plane probe types. Available on SC7-1U, SC9-2U, SL10-3U, SLM10-3U, LM18-5WU, LM24-6WU, SV10-2U, ELC13-4U
- Endocavity STE
 - SV10-2U, ELC13-4U
 - 2D real-time STE of the endocavity transducer. Mainly used for urology and gynecology examinations.
- Display Format: V1:1, H1:1, FULL
- Invert: on/off
- HQ Elasto: on/off
- E Quality: Pen, Gen, Res
- Elas.Metric: E, Cs, G
- Scale: 30 levels
- Opacity: 0-5, 1/step
- Map: 3 types
- ROI Width/Height: continuously random adjustable
- ROI Center Depth: continuously adjustable
- Depth: same as B mode
- iLayering: on/off
- Filter: 0, 1
- RLB View: on/off
- M-STB Index: on/off
- M-STB Sensibility: 0-4, 1/step
- iNatural: on/off
- Smooth: 0-2, 1/step
- Persistence: 0-2, 1/step
- RLB Map: on/off, RLB, RLB&E, RLB&B&E
- Map Position: 0%-100%, 5%/step
- E bar: Mean, Max, Min, SD

- E Avg: off, 8 levels
- Select/Bad: on/off
- E&Biopsy
 - It is used to guide the plane of the systematic prostate biopsy based on the STE plane with the plane matching method, so that the biopsy plane is consistent with the STE plane.
 - Similarity: indicate the similarity between STE and B images based on plane matching condition of tissue form. The higher the matching degree of the STE and B planes, the larger the value.

5.41 High frame rate STE

To increase the frame rate of STE function.

5.42 STVi (Sound Touch Viscoelastography)

- Viscoelastic imaging and quantitative analysis tools, with the dual quantitative parameters of viscosity and dispersion, intelligent quality control tools, help clinicians further explore the correlation between liver fibrosis and inflammation.
- Supports the measurement of Viscosity Coefficient, Dispersion Coefficient and Frequency-specified STE.
- Real-time display STVi, STE, and 2D imaging.
- STVi: on/off
- Visco.Filter: 0,1
- Visco.Bar: Max, Mean, Min, SD
- Visco Opacity: 0-100%, 6 levels
- Visco.Scale: adjustable
- Visco.Metric: Visco, Disper
- SW Freq.: adjustable
- Visco.Map: Vi1-Vi8, 1/step

5.43 Natural Touch Elastography

- Supports Convex, Linear, Intracavity, Bi-plane probe types. Available on SC7-1U, SC9-2U, SL10-3U, SLM10-3U, LM18-5WU, LM24-6WU, L33-8U, SV10-2U, ELC13-4U
- Support strain, strain ratio and strain histogram measurement
- Unique shell analysis function
- Stress compensation technology reduces deeper tissue artifacts, obtain more uniform stress throughout whole field

- Stress indicator: supports frame by frame stress indication.
- Map: 6 types
- Smooth: 0-5, 1/ step
- Opacity: 0-5, 1/step
- ROI Width/height: continuously adjustable
- Invert: on/off
- Display Format: V1:1, H1:1, FULL
- Strain mode: 0-1, 1/step
- Dynamic Range: 0-5, 1/step
- Map Position: 0%-100%, 5%/step

5.44 USAT

- SC7-1U, SC9-2U: supports Abdominal USAT
- SL10-3U, SLM10-3U, LM18-5WU: supports Superficial USAT
- UltraSound ATtenuation analysis enables quantitative fatty liver assessment by measuring the attenuation coefficient.

5.45 HRI⁺

HepatoRenal Index Plus enables quantitative fatty liver assessment by measuring the echo intensity ratio between the liver parenchyma and the renal cortex based on the RF data.

5.46 LTI

Liver Texture Index enables quantitative fatty liver assessment by statistically analyzing the size and density of scatters of the liver parenchyma

5.47 TSSI

By measuring the speed of sound through the echo signal of the liver parenchyma, quantitative assessment of the level of liver steatosis.

- Parameters of USAT, HRI⁺, LTI, and TSSI
Note: the parameter items may vary based on the specific mode selected
 - Scan Time: Single, 1s, 2s, 3s, MAX
 - H-ROI Size: 10mmx10mm-26mmX26mm(2mm /step), 30mmx30mm
 - M-STB Index: On/Off
 - Filter: 0, 1, 2
 - M-STB Sensi.: 0-4,1/step
 - H1:1: On/Off
 - Full: On/Off

- E bar: Mean, Max, Min, SD (the value may varies based on the specific mode selected)
- RLB Map: On/Off
- RLB View: On/Off
- Opacity: 0-9, 1/step
- Map: F1-F4, 1/step
- Att.Metric: dB/cm/MHz, dB/m/MHz, dB/m
- Scale: 0-10, 1/step
- Frame Average: 1, 3, 5, 7, 10 (the value may varies based on the specific mode selected)
- Select/Bad: 1-10, 1/step

5.48

- Supports Convex, Linear, Intracavity, Bi-plane probe types. Available on SC7-1U, SC9-2U, SC6-1GU, SL10-3U, SLM10-3U, LM18-5WU, SV10-2U, ELC13-4U
- Single window display
- Fusing CT/MR/PET/freehand volume data with the ultrasonic image
- CT/MR/PET data reconstruction for 3D displaying
- Tracking system: on/off
- Fusion ratio: -1-1, 0.1/step
- Axis rotation: 0° ~ 360° based on X-axis, Y-axis or z-axis in increment of 2°.
- ROI Offset X: -550-550
- ROI Offset Y: -553-553
- Window W/L: 1/step. Adjust the CT/MR/PET/freehand brightness and the contrast by changing the width and the level.
- Reset Window W/L
- Reset CT/MR/Freehand/PET
- Display marks
- Respiration curve: on/off
- Respiration Range: 0/1/2
- Support general measurement
- Support adding comment and bodymark
- Contrast fusion imaging
- Elastography fusion imaging

5.49 Endocavity Fusion Imaging

Mainly used for endocavity transducer, fusing real-time ultrasound and CT/MR images.

5.50 Fusion RESP

By automatically detecting the patient's respiratory motion signal, provide the respiratory motion compensation technology, reduce the fusion distortion caused by the patient's respiration, and provide more accurate fusion imaging.

5.51 uHIT Evaluation

- Ultrasound guided Hepatic Interventional Therapy evaluation, an advanced 3DUS fusion based ablation evaluation tool for instant liver percutaneous ablation evaluation
- Image Type: tissue, contrast
- Translation: volume, center
- Probe inversion
- 3D display

5.52 uHIT Navigation

- Ultrasound guided Hepatic Interventional Therapy navigation, an advanced fusion-based 3D ablation planning and guidance solution for liver percutaneous ablation procedure
- US plane: on/off
- Rotation Step: 1, 5, 10, 20, 40
- Reset: on/off
- Biopsy depth: 0-300mm, 1mm/step
- Tumor opacity: 0-1.0, 0.1/step
- Ablation opacity: 0-1.0, 0.1/step
- Ablative Margin: 0-6, 1/step
- Offset X: -544 - 544, 1/step
- Offset Y: -700 - 700, 1/step
- Single window: on/off
- Viewer: front view, dual view (180°), dual view (L90°), dual view (R90°)
- Needle state: display/hide
- Probe mark type: 3D model, 3D probe

5.53 Needle Navigation

- In-plane biopsy and Out-plane biopsy
- GPS real-time guiding biopsy

5.54 AutoEF

- Automatic Ejection Fraction Measurement, it provides an efficient way to detect the left ventricle and calculate the EF.
- Output EDV/ESV/EF/SV/CO by Simpson method

- Activated with or without ECG
- Adjustment for the border of endocardium by single point or multi points

5.55 TDI QA

- Dedicated quantification tool for TDI velocity, strain, strain rate analysis
- Ellipse ROI, Standard ROI
- Up to 8 of ROI
- ROI tracking: tracking ROI along with cardiac movement
- Std.Height: 1.5-50 mm
- Std.Width: 1.5-50 mm
- Std.Angle: -89-90 degrees
- Export: export current data as CSV format file

5.56 Tissue Tracking QA

- Available on SPM6-1U in cardiac exam mode.
- Six views for analysis: ALAX, A4C, A2C, PSAXB, PSAXM, PSAXAP
- Reload: reload cine again for new study
- Edit: modify trace points
- Start tracking
- Accept & compute: start tracking myocardium movement when user accept trace result
- Display effect: 0/1; at 0, tracking in velocity vector arrow; at 1, tracking in dots
- Trace method: 3 point or manual for ALAX, A4C, A2C; manual for PSAXB, PSAXM, PSAXAP
- Bull's eye: trace result in bull's eye model
- LGC: available
- Valve's open and close time index: MVC, MVC', AVC, AVO, MVO
- Data export: export data in CSV file
- Cycle: ECG triggered cardiac cycle recognition for analysis; adjustable
- Auto play: stop, X1/10, X1/5, X1/4, X1/3, X1/2, X1, X2, X3
- Thickness: 1-30mm, 1mm/step; adjust trace thickness
- Track point: 20-40, 1/step
- Parameter:
 - Volume, Speed, Displacement, L Strain, L Strain R, T Strain, T Strain R

- Speed, Displacement, R Strain, R Strain R, C Strain, C Strain R, Area, Global Strain, Global Strain-rate

- Smooth: 0-4, 1/step
- Display effect: 0, 1
- Trace method: 3 point, manual
- Tracking cycles: 1, 3
- Blue's Eye view
- Curve Display
- Torsion & Torsion Rate Curve
- LGC adjustment

5.57 FH Tissue Tracking QA

- Fetal Heart Tissue Tracking with Quantitative Analysis, Real-time track the continuous motion of fetal myocardium, display the mechanical changes of each segment in the longitudinal and transverse directions, offering accurate and effective evaluation of myocardial movement of fetal heart
- Available on fetal heart exam modes

5.58 Stress Echo

- Available on phased probe
- 14 factory protocols
- User-defined protocols
- ECG triggered acquisition, display, selection, comparison, evaluation and archiving of multiple cardiac loops during various stages of a stress echo examination
- Customized stages: up to 7 views per stage, and up to 12 stages per study
- View: standard views (PSLA, PSAX, A4C, A2C), and customized views
- Image acquisition
 - R-wave trigger
 - Acquire mode: Manual ROI or full screen
 - Ability to acquire frames or clips in B-mode
- Image selection
- Attach the images with view annotation label (PSLA, PSAX, A4C, A2C, and customized views)
- Review
- Automatically adjust to the number of images user defined
- Wall Motion Scoring

- ASE 16 (with score 4-7), or ASE 17(with score 4-7)
- Report Reporting for both Wall Motion Scoring and LV volume measurement

5.59 V Flow (Vector Flow)

- A novel approach for vascular hemodynamic analysis, using color coded vector arrows to display flow velocity magnitude and direction,
- Quality: 1-8, 1/step
- V Flow map: 4 levels
- Gain: 0-8, 1/step
- Persistence: 0-5, 1/step
- Edge smooth: Low/Mid/High
- Wall filter: 8 steps
- Brightness: 0-100%, 5%/step
- Colorbar scale: 50-100cm/s, 10cm/s/step
- Arrow life time: 10-50, 1/step
- Arrow size: S/M/L/XL/XXL
- Arrow density: 1%-10%,1%/step
- Vector Flow Quantitative Analysis: Single point-time curve, ROI speed-time curve, velocity ratio
- Flow Volume Calculation
- WSS (Wall Shear Stress)

5.60 RIMT (RF-Data based IMT)

- Available in carotid exam mode of linear probe
- Side: left/right
- Calculation of 6 RIMT values, RIMT average value, SD and ROI W
- Report operation:
- Data deleting
- RIMT trend graphic viewing
- Preview

5.61 R-VQS

- RF-data Based Quantitative Analysis on Vessel Stiffness
- Track movements of the upper and lower vessel walls automatically
- Displacement and Vessel diameter display in the result window.
- Motion curve of vessel walls display under the image in real time.

5.62 Arterial PWV Analysis

Based on RF data, the propagation information of vascular pulse wave velocity is recorded and measured for quantitative evaluation of arterial vascular sclerosis.

5.63 TB Flow

Provides intuitive non-doppler visualization of blood cell motion

5.64 Smart Pelvic

- Enter smart pelvic in 2D or 3D/4D scanning mode.
- 2D
 - Automatic measurement of anterior, middle, and posterior pelvis
 - Three measurement systems are supported to meet the needs of different users
- 3D/4D
 - Automatic imaging and measurement of the levator ani muscle hiatus
 - Auto-tomography and measurement of levator ani muscle

5.65 Smart FLC (Smart Follicle)

- Automatically measures and calculate the number and size of follicles in the image area, and evaluate follicles according to the follicle size in 2D and 3D mode.
- Automatically segments the anechoic structure is by one click, and displays the anechoic structures at different positions and sizes in different colors.
- Automatically measures the follicle diameter, length at the X-axis, Y-axis, Z-axis, as well as the average value and volume of the three axes.

5.66 Smart Scene 3D

An innovative technique of automatic scenario-oriented volume scan for extremely easy, efficient and accurate exams. It is capable of automatically identifying tissue characteristics, such as fetal brain, fetal face, fetal bone, fetal spine

5.67 Smart Scene

- Available under B, Color, Power, and PW mode.
- Clinical scenario-based automation of 2D ultrasound scan, provides automated imaging parameter settings, 2D measurements, flow analysis and so on.

- Supports UMA function.

5.68 Smart Fetal HR (Fetal Heart Rate)

Measure the fetal heart rate automatically on B/M mode

5.69 Smart Breast

- Automated breast mass BI-RADs classification and reporting tool, which provides automated breast ultrasound lesion classification and reporting, and it can be used as breast ultrasound quality control solution with high-efficiency.
- Standardized scanning procedure based on the lesions, and Standardized scanning procedure guide
- Automatic lesion identification, detection, measurement, comment, report generation, etc.
- Multi-lesion& multi-plane management and analysis

5.70 Smart Thyroid

- Automated thyroid ultrasound analysis and reporting tool, for efficiency and standardization of thyroid nodule diagnosis.
- Standardized scanning procedure based on the lesions, and Standardized scanning procedure guide
- Automatic lesion identification, detection, measurement, comment, report generation, etc.
- Multi-lesion& multi-plane management and analysis

5.71 M Reference

- M-Ref. Live
 - It is used to jointly analyze multiple modes in multiple windows that are displayed in the same screen in real time, so as to fully take advantages respectively and make evaluation in multiple dimensions
 - The jointly analysis items are B/RLB Map/StrainE/STE/STVi/USAT/LTI/TSSI. For different probes and exam modes, the jointly analysis items can be different.
 - Multi-parameter grading reference and multi-parameter grading radar

are provided to indicate malignancy more intuitively.

- The report is more comprehensive, supporting the display of multi-parameter grading reference and multi-parameter grading radar diagram
- M-Ref. C&E
 - M-Ref. C&E enables both of the contrast and STE in one plane within the display, for comparative assessment of perfusion and elasticity.
 - Mix: enable or disable mix mode. In mix mode, the dual window display the B mode image, as well as the mixed image of Contrast and STE.

5.72 iScanHelper

- An ultrasonic tutorial and assistant package integrated in ultrasound devices.
- Tutorial function as a guidance to show basic scanning skill with graphic of transducer position, schematic of anatomy and example clinical image
- Supports Abdomen, gynecological, urological, obstetrical, Small Parts and nerve block area.

5.73 iCompare

Allow to compare real-time ultrasound imaging to images from iStation; Helpful to easily evaluate and follow up the progression of disease, treatment effect monitoring

6 Cine Review and Raw Data Processing

6.1 Cine review

- Supports manually or automatically review cine in 2B, Color, Contrast, 4D modes.
- Supports editing during cine review. Frame by frame manual cine loop review or auto playback with variable speed
- Cine swing play: play the cine from back to front when the last frame is played.
- Save and edit the edited cine images for many times

- Supports direct storage of single-frame image and cine file in freezing status, and has independent saving key
- Maximum cine memory up to 86605 frames (B storage server) or 164.3s (M storage server) (depends on the mode)
- Maximum 4D cine memory: 1524 volumes (DE10-3WU)
- Retrospective storage (1-120s, pre-settable) and prospective storage (1-480s, pre-settable)
- Frame compare: displays one cine in dual format and allows frame by frame compare side by side
- Cine compare: compare cines which are saved in same imaging mode
- Jump to first and jump to last: one keystroke go to first or last frame in the cine

6.2 Raw data processing

- B-mode:
 - TGC
 - Gain
 - Dynamic range
 - Gray map
 - Tint map
 - Clear⁺
 - L/R Flip
 - U/D Flip
 - Rotation
 - iTouch
 - LGC
 - Dual live
 - Auto Merge
 - H Scale
 - Smooth
 - HD Scope⁺
 - Zoom
 - Dehaze
 - V1:1
 - Ref Lines
 - XL View
 - Edge Enhance
- M-mode:
 - Gain
 - Speed
 - Dynamic Range
 - Gray Map

- Tint Map
- Display format
- Edge Enhance
- Color:
 - Gain
 - Baseline
 - Smooth
 - Color map
 - Priority
 - Dual Live
 - Invert
 - Velocity tag
 - Glazing flow
 - Flash Control
 - Artifact Control
 - Hide Color
- PW:
 - Gain
 - Baseline
 - Volume
 - Angle/Quick Angle
 - Speed
 - Dynamic range
 - Gray map
 - Tint Map
 - Display format
 - Invert
 - WF
 - T/F Res
 - Auto Calc
 - Auto Calc Cycle
 - Auto Calc Parameter
 - Trace Loop
 - Trace Area
 - Trace Smooth
 - Trace Sensitivity

7 Measurement/Analysis and Report*

NOTICE: Support manual, semi-automat, automat, real-time and on CINE clip measurements

7.1 Automatic Measurement and Analysis

- IMT (Intima-Media Thickness Measurement)
Automatic detection, measurement and analysis of IMT when ROI is set
- IVF
 - In Vitro Fertilization, includes dedicated IVF image parameter/

- measurement/comment/bodymark/report
 - The uterus and follicle growth curve can be displayed in the IVF report.
 - Data of IVF history exams can be checked in the IVF report.
- Smart OB
 - Auto measurement for OB, a special tool for easy OB scan, and greatly reduce time and increase productivity
 - Support BPD, HC, OFD, FL, AC, HUM. More than 6 automatic measurement items are supported.
- Smart NT

Automatic detection and measurement of fetal nuchal translucency, which makes NT evaluation more efficient and accurate.
- Smart HIP

Automatic hip measurements and Graf classification of neonatal and pediatric hip for easy screening of DDH (Developmental Dysplasia of the Hip).
- Smart HRI

Hepato-Renal Index, which is provided automated liver steatosis assessment by automatically calculating brightness scale ratio between the liver with renal cortex in B mode.
- Smart Trace

A smart tool for easy and precise boundary trace

Automatically identify and trace lesions, as well as measure the length, area and circumference of the long axis and short axis within the defined ROI.
- Smart Calc

Fast automatic tools to calculate the area and diameter of tissue structure or lesions.
- CPP

Measure the blood flow signal distribution in the defined ROI under the Color/Power mode, and calculate the color pixel percentage within the defined ROI.

7.2 User-defined Measurement

Supports user-defined measurement calculations and studies

7.3 Report

- Specific report template by application
- Editable value in report
- Images selectable
- Presetable hospital information
- Able to Export as PDF file

7.4 Comments/Bodymark

- Supports text input and arrow
- Support freehand marking on touch screen
- Adjustable text size and arrow size
- Supports home position
- Covers various application
- More than 250 bodymarks for versatile application
- User customizable Comments/Bodymark

7.5 iWorks

- Auto workflow protocol, can be combined with a standardized exam protocol to facilitate a more efficient and standard ultrasound exam in the clinic with guidance.
- Automatically add comments, body marks and switch the image mode according to the protocol.
- Templates are user configurable
- Template import and export are available
- Functions: pause, stop, replace, repeat, skip, insert single step, return and continue
- iNSert another template during the iWorks process.
- iWorks setup mode: B; B/B (Dual Live); Dual B/B; Color; B/Color (Dual Live); Power; B/Power (Dual Live); B + PW; Color + PW; Power + PW; B + CW; Color + CW; B+M; B+TVI; TVI+TVD; iScape.
- iWorks setup annotation: support unlimited number of annotation settings, location and font size are configurable.

- iWorks setup bodymark: select existing library, and transducer indicator is pre-settable
- iWorks setup measurement: select existing measurement library

* Not all measurements are listed in this part; For more detailed information, please refer to User Manual

8 Exam Storage and Management

8.1 Exam Management

- iStation workstation dedicated for patient information management
- Workstation dedicated for image management
- Workstation dedicated for report and report template management
- Workstation dedicated for exam management
 - Patient exam query/retrieve
 - Support review of current and past exam
 - New exam, Activate exam, Continue exam, Pause Exam, End exam, Cancel Exam are available
 - Support measurements and calculations on archived exam and images
- Data defense system: The data permission and access control can be set for different users.

8.2 Exam Storage

- Supports local SSD disk storage: 1TB or 2TB (The operating system and application software may occupy the hard disk space. The specific available capacity is subject to the actual display)
- Direct digital storage of single frame and cine files.
- Export images in BMP/JPG/TIFF/DCM/AVI/MP4/WMV/MOV format
- Supports back-end storage, export and backup of image data, real-time exam, without affecting exam operation.
- Supports backup/send to USB devices
- Supports backup/send to DVD-RW media
- Supports DICOM 3.0

- Supports network storage (iStorage). Based on the TCP/IP protocol, the ultrasound image and report can be directly transmitted to the PC device.
- Supports print service.

9 Connectivity

9.1 Ethernet Network Connection

- Cable connection
- Wireless connection

9.2 DICOM 3.0

- DICOM Basic
 - Verify (SCU, SCP)
 - Print
 - Store
 - Storage Commitment
 - Media Exchange
- DICOM Worklist
- DICOM Query/Retrieve
- DICOM Modality Performed Procedure Step - MPPS
- DICOM OB/GYN structured report
- DICOM Cardiac structured report
- DICOM Vascular structured report
- DICOM Breast structured report
- DICOM Abdomen structured report
- DICOM Small Parts structured report
- DICOM Pediatric structured report
- DICOM Urology structured report

9.3 UltraAssist

- Direct network storage tool between ultrasound system and personal computer
- The ultrasound system supports sending reports or patient information to the PC via iStorage.
- The PC supports import custom report templates and test items to the ultrasound system via iReport and iMeasurement.

9.4 u-Link

- Real-time image acquisition technology. The ultrasound machine can send high definition images to the terminal device (mobile phone/computer/tablet) quickly by one-click through private

transmission protocol. It can be used in consultation, quality control, case discussion, etc.

- It is used to connect the software that supports u-Link protocol.
- One-click transmission of static and dynamic images to UltraSync

10 Transducers

10.1 Curved Array

- SC7-1U (Single Crystal)
 - Application: Obstetrics, Gynecology, Abdominal, Small Organ, Musculo-skeletal, Vascular, Urology, Nerve
 - Bandwidth: 1.0-6.0MHz
 - FOV (max): 64°
 - Extended FOV: 134°
 - Depth: 4-40cm
 - Number of Elements: 192
 - Convex Radius: 55 mm
 - Physical Footprint: 74.5 mmx26.8 mm
 - Footprint: 64.9mmx14.8 mm
 - B-Mode Frequencies: 1.2-3.8, 1.7-5.2, 2.0-6.0 MHz
 - Harmonic Frequencies: 4.0, 5.0, 5.5 MHz
 - Color Frequencies: 2.0, 2.5, 3.0, 3.5, 2.5 (HR Flow) MHz
 - PW Frequencies: 2.0, 2.5, 3.0 MHz
 - Biopsy Guide: NGB-057, multi angle, reusable
- SC9-2U (Single Crystal)
 - Application: Obstetrics, Gynecology, Abdominal, Urology, Vascular
 - Bandwidth: 1.8-8.2MHz
 - FOV (max): 64°
 - Extended FOV: 124°
 - Depth: 4-34cm
 - Number of Elements: 192
 - Convex Radius: 43mm
 - Physical Footprint: 66.1mm x 26.1mm
 - Footprint: 48.8mm x 12.1mm
 - B-Mode Frequencies: 1.8-5.2, 1.8-5.4, 2.3-6.5, 2.3-6.8, 2.0-8.0, 2.0-8.2 MHz
 - Harmonic Frequencies: 4.8, 5.4, 5.8, 6.0, 6.5 MHz
- SC6-1GU (Single Crystal)
 - Application: Obstetrics, Gynecology, Abdominal, Urology
 - Bandwidth: 1.2-6.0 MHz
 - FOV (max): 78°
 - Extended FOV: 138°
 - Depth: 4-30cm
 - Number of Elements: 128
 - Convex Radius: 20mm
 - Physical Footprint: 36.6mmx20mm
 - Footprint: 27.2mmx12.8mm
 - B-Mode Frequencies: 1.2-3.8, 1.7-5.2, 2.0-6.0 MHz
 - Harmonic Frequencies: 4.0, 4.5, 4.6, 5.0 MHz
 - Color Frequencies: 2.0, 2.2, 2.5, 2.7, 3.0, 3.5, 3.2 (HR Flow) MHz
 - PW Frequencies: 2.0, 2.5, 3.0 MHz
 - Biopsy Guide: NGB-063, multi angle, reusable
- C11-3U
 - Application: Abdominal, Vascular, Cardiac, Small Organ, Pediatric
 - Bandwidth: 2.6-12.8 MHz
 - FOV (max): 100°
 - Extended FOV: 112°
 - Depth: 1.5-25cm
 - Number of Elements: 128
 - Convex Radius: 15mm
 - Physical Footprint: 32.8mmx25mm
 - Footprint: 27.4mmx8.4mm
 - B-Mode Frequencies: 2.6-6.5, 3.2-7.9, 4.7-12.8 MHz
 - Harmonic Frequencies: 6.0, 7.0, 8.0 MHz
 - Color Frequencies: 4.4, 5.0, 5.7, 5.0 (HR Flow) MHz
 - PW Frequencies: 4.4, 5.0, 5.7 MHz
 - Biopsy Guide: NGB-018, multi angle, reusable
- SV10-2U (Single Crystal)
 - Application: Obstetrics, Gynecology, Urology
 - Color Frequencies: 3.0, 3.5, 4.0, 4.1, 4.2MHz
 - HR Flow: 3.0, 3.2, 5.2MHz
 - PW Frequencies: 3.0, 3.5, 3.8 MHz
 - Biopsy Guide: NGB-058, multi angle, reusable

- Bandwidth: 2.0-10.0MHz
- FOV (max): 182°
- Extended FOV: 207°
- Depth: 4-40cm
- Number of Elements: 256
- Convex Radius: 11mm
- Physical Footprint: 24.5mmx21mm
- Footprint: 24mmx10mm
- B-Mode Frequencies: 2.0-6.0, 2.8-8.2, 3.0-9.0 MHz
- Harmonic Frequencies: 4.0, 5.0, 6.0 MHz
- Color Frequencies: 4.4, 5.0, 5.7, 5.0 (HR Flow) MHz
- PW Frequencies: 4.5, 5.0, 5.5 MHz
- Biopsy Guide: NGB-062, single angle, reusable

10.2 Volume

- SD8-1U (Single Crystal)
 - Application: Obstetrics, Gynecology, Abdominal
 - Bandwidth: 1.8-8.4MHz
 - FOV (max): 65°
 - Extended FOV: 90°
 - Volume Sweep Angle (max): 90°
 - Depth: 4-40cm
 - Number of Elements: 192
 - Convex Radius: 45mm
 - Physical Footprint: 75.7 mmx52.6 mm
 - B-Mode Frequencies: 1.8-5.4, 2.3-6.8, 2.0-8.2, 2.2-8.4MHz
 - Harmonic Frequencies: 4.8, 5.2, 5.4, 6.0, 6.2 MHz
 - Color Frequencies: 3.0, 3.5, 4.0, 4.2MHz
 - HR Flow: 3.0, 3.2, 4.0MHz
 - PW Frequencies: 3.0, 3.5, 3.8 MHz
 - Biopsy Guide: NGB-039, multi angle, reusable
- DE10-3WU
 - Application: Obstetrics, Gynecology, Urology
 - Bandwidth: 2.0-9.0 MHz
 - FOV (max): 153°
 - Extended FOV: 193°
 - Volume Sweep Angle (max): 120°
 - Depth: 4-40cm
 - Number of Elements: 192
 - Convex Radius: 10mm
 - Physical Footprint: 24mmx24mm

- Physical Footprint: 24mmx24mm
- B-Mode Frequencies: 2.0-6.0, 2.8-8.2, 3.0-9.0 MHz
- Harmonic Frequencies: 4.0, 5.0, 6.0 MHz
- Color Frequencies: 4.4, 5.0, 5.7, 5.0 (HR Flow) MHz
- PW Frequencies: 4.4, 5.0, 5.7 MHz
- Biopsy Guide: NGB-021, single angle, reusable

10.3 Linear Array

- SLM10-3U (Single Crystal& Matrix)
 - Application: Abdominal, Pediatric, Small Organ, Musculo-skeletal, Vascular, Nerve, Obstetrics
 - Bandwidth: 2.5-11.0MHz
 - Number of Elements: 192*3
 - FOV (max): 43.9mm
 - Extended FOV: 60°
 - Depth: 1.5-15cm
 - Steered Angle:
 - B: 0°, +/-4°, +/-10°;
 - C/PW: 0°, +/-10°, +/-20°, +/-30°
 - Physical Footprint: 62.1mmx25.2mm
 - Footprint: 48.5mmx11.5mm
 - B-Mode Frequencies: 2.5-7.0, 3.4-8.2, 5.0-11.0 MHz
 - Harmonic Frequencies: 6.0, 8.0, 10.0 MHz
 - Color Frequencies: 3.0, 4.0, 5.0, 6.3, 5.0 (HR Flow) MHz
 - PW Frequencies: 3.0, 4.1, 5.0, 6.3 MHz
 - CW Frequencies: 5.0 MHz
 - Biopsy Guide: NGB-059, multi angle, reusable
- SL10-3U (Single Crystal)
 - Application: Abdominal, Pediatric, Small Organ, Musculo-skeletal, Vascular, Nerve, Obstetrics
 - Bandwidth: 2.5-13.0MHz
 - Number of Elements: 192
 - FOV (max): 43.9mm
 - Extended FOV: 60°
 - Depth: 1.5-15cm
 - Steered Angle:
 - B: 0°, +/-4°, +/-10°;
 - C/PW: 0°, +/-10°, +/-20°, +/-30°
 - Physical Footprint: 62.1mmx25.2mm
 - Footprint: 48.53mmx9.53mm

- B-Mode Frequencies: 2.5-7.0, 3.4-8.2, 5.0-11.0 MHz
- Harmonic Frequencies: 6.0, 8.0, 10.0 MHz
- Color Frequencies: 3.0, 5.0, 6.3, 5.0 (HR Flow) MHz
- PW Frequencies: 3.0, 5.0, 6.3 MHz
- CW Frequencies: 5.0 MHz
- Biopsy Guide: NGB-059, multi angle, reusable
- L12-3RCs
 - Application: Small Organ, Vascular, Musculo- skeletal, Abdominal, Pediatric, Thoracic/ Pleural, Nerve
 - Bandwidth: 3.0-11.0 MHz
 - Number of Elements: 192
 - FOV (max): 3.80cm
 - Extended FOV: 20°
 - Steered Angle
B: -12°, -6°, 0°, 6°, 12°
C/PW: -30°-30°
 - Depth: 1.5-35.0 cm
 - Biopsy Guide: NGB-043 (within the plane), multi angle, reusable; NGB-044 (outside the plane), multi angle, reusable
- LM18-5WU (Matrix)
 - Application: Small Organ, Musculo-skeletal, Vascular, Abdominal, Pediatric
 - Bandwidth: 3.8-18.0MHz
 - Number of Elements: 336*3
 - FOV (max): 50.3mm
 - Extended FOV: 60°
 - Depth: 2-10cm
 - Steered Angle:
B: 0°, +/-6°, +/-12°;
C/PW: 0°, +/-10°, +/-20°, +/-30°
 - Physical Footprint: 69.3mm x 26.7mm
 - Footprint: 55mm x9.3mm
 - B-Mode Frequencies: 3.8-9.0, 5.0-12.0, 6.0-15.4 MHz
 - Harmonic Frequencies: 10.0, 15.5, 18.0 MHz
 - Color Frequencies: 5.0, 6.2, 7.2, 7.2 (HR Flow) MHz
 - PW Frequencies: 5.0, 6.2, 7.2 MHz
 - CW Frequencies: 6.3 MHz
 - Biopsy Guide: NGB-060, multi angle, reusable
- LM24-6WU (Matrix)
 - Application: Abdominal, Small Organ, Musculo-skeletal, Vascular, Nerve
 - Bandwidth: 6.0-23.0MHz
 - Number of Elements: 256*3
 - FOV (max): 38.2mm
- Extended FOV: 20°
- Depth: 0.5-6.0cm
- Steered Angle:
B: 0, +/-4°, +/-8°;
C: 0, +/-6°, +/-12°, +/-20°
PW: 0, +/-10°, +/-15°, +/-20°
- Physical Footprint:
63.1mmx27.7mm
- Footprint: 42.4mmx6.4mm
- B-Mode Frequencies: 6.0-15.0, 8.0-16.6, 10.5-23.0 MHz
- Harmonic Frequencies: 17.0, 20.0, 23.0 MHz
- Color Frequencies: 9.0, 11.0, 13.0, 13.0 (HR Flow) MHz
- PW Frequencies: 8.3, 10.0, 12.5 MHz
- Biopsy Guide: not available
- L33-8U
 - Application: Small Organ, Musculo-skeletal, Vascular, Pediatric, Cephalic, Nerve
 - Bandwidth: 8.3-33.0MHz
 - Number of Elements: 192
 - FOV (max): 19.1mm
 - Extended FOV: 20°
 - Depth: 0.5-3.5cm
 - Steered Angle:
B: 0°, +/-6°, +/-12°;
C: 0°, +/-10°, +/-15°, +/-20°;
PW: 0°, +/-10°, +/-20°, +/-30°
 - Physical Footprint: 37.9mm x 27.3mm
 - Footprint: 28.2mm x 5mm
 - B-Mode Frequencies: 8.3-17.0, 15.1-25.2, 23.5-30.0MHz
 - Harmonic Frequencies: 20.0, 31.0, 33.0 MHz
 - Color Frequencies: 14.0, 15.0, 17.0, 17.0 (HR Flow) MHz
 - PW Frequencies: 12.5, 14.3, 17.0 MHz
 - Biopsy Guide: not available
- L16-4HU
 - Application: Musculo-skeletal, Nerve, Small Organ, Vascular, Pediatric, Intra-operative
 - Bandwidth: 3.5-16.0MHz
 - Number of Elements: 128
 - FOV (max): 25.4mm
 - Extended FOV: 20°

- Depth: 1.5-10.0cm
- Steered Angle:
B: 0, +/-6°, +/-12°;
C/PW: 0, +/-10°, +/-20°, +/-30°
- Physical Footprint: 11.5mmx38mm (Oblique width)/34.8mm (Straight width)
- Footprint: 28.7mmx5.5mm
- B-Mode Frequencies: 3.5-9.2, 7.6-12.8, 9.6-16.0 MHz
- Harmonic Frequencies: 10.0, 12.0, 14.0 MHz
- Color Frequencies: 6.2, 7.2, 8.3, 8.3 (HR Flow) MHz
- PW Frequencies: 5.0, 6.2, 8.3 MHz
- Biopsy Guide: not available

- Linear: Small Organ, Vascular, Musculo-skeletal, Nerve
- Bandwidth:
Convex: 2.0-5.0 MHz
Linear: 2.0-9.0 MHz
- Number of Elements: 128*3
- FOV (max): 3.80cm
- Extended FOV: 90°
- Steered Angle
B: -12°, -6°, 0°, 6°, 12°
C/PW: -30° -30°
- Depth: 1.5-40.0 cm
- Biopsy Guide: not available

10.4 Phased Array

- SPM6-1U (Single Crystal& Matrix)
 - Application: Abdominal, Cardiac, Vascular, Cephalic
 - Bandwidth: 1.0-5.0MHz
 - Field of View (max): 90°
 - Extended FOV: 90°
 - Depth: 2-38cm
 - Number of Elements: 96*3
 - Physical Footprint: 37.9mmx30.3mm
 - Footprint: 24.2mmx15.6mm
 - B-Mode Frequencies: 1.5-2.5, 2.5-3.5, 3.5-5.0 MHz
 - Harmonic Frequencies: 2.6, 3.2, 4.0MHz
 - Color Frequencies:
General: 2.0, 2.3, 2.5, 2.5 (HR Flow) MHz;
TCI: 1.8, 2.0, 2.3, 2.5 (HR Flow) MHz
TDI: 3.0, 3.8 MHz
 - PW Frequencies: 1.8, 2.0, 2.3MHz;
TDI: 2.5, 4.0 MHz
 - CW Frequencies: 2.0 MHz
 - Biopsy Guide: NGB-056, multi angle, reusable

10.5 Wireless Probe

- i5M
 - Application: Convex: Abdominal, Gynecology, Obstetrics, Cardiac, Urology, Thoracic/Pleura, Small Organ, Vascular, Musculo-skeletal, Nerve

11 Peripheral Devices and Accessories

- Black/White Video Printer
 - Digital& Analog: SONY UP-X898MD
 - Digital: MITSUBISHI P95DW-N
- Color Digital Printer SONY UP-D25MD
- Graph/Text Printer
 - CANON TS708 (DICOM/Wireless)
 - Epson L130
- Gel Warmer
 - Support gel warming with 3 angle position: 15, 45, 90 degrees
 - Easily be disassembled off system for cleaning
 - Temperature with 3 levels: off/34°C/ 37°C/40°C, with deviation of ±2°C
 - Light indicator for temperature protecting
 - Dimension: 78mm (Width)*82mm (Depth)*119mm (Height)
 - Weight: approx. 240g (net)
 - Continuous operation time: >12H
- Footswitch
 - USB port: 971-SWNOM (2/3 pedal)
 - Support user-definable functions (Freeze, Save, Print)

- ECG
 - 6-pin, AHA/IEC, for 3-lead wires
 - ECG wave display: on/off
 - ECG source: Lead/External
 - Position: 0-100%, 5%/step
 - Trig mode: off/single/dual/timer
 - Gain: 0-30, 1/step
 - Sweep speed: 1-6, 1/step
 - Invert: on/off
- PCG (not for sale in EU countries)
 - PCG wave display: on/off
 - Gain: 0-30, 1/step
 - Speed: 6 steps
 - Smooth: 1-4, 1/step
- Barcode Reader
 - LS2208
 - DS4608
 - JADAK HS-1M
 - JADAK HS-1R
 - JADAK HS-1RS
- HH1800
- Built-in Wireless Adapter
 - Encryption: WPA, WPA2
 - Protocols: IEEE 802.11 ac/a/b/g/n/ax
 - Frequency: 2.4G/5G

12 System Inputs and Outputs

- Video/Audio Input
 - Microphone: 1 port (Type-C composite interface)
- Video/Audio Output
 - S-Video out: 1 port
 - HDMI: 1 Port
 - VGA out: 1 port
 - Audio out: 1 port
- Physio Input
 - Support ECG/PCG signal
 - ECG: 1 port
 - PCG: 1 port
- Other Input/Output
 - USB: 6 ports (including 2 Type-C ports)
 - Ethernet: 1 port

13 Safety and Conformance

- Quality Standards
 - ISO 9001

- ISO 13485
- Design Standards
 - CSA C22.2 No. 601-1
 - 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

14 CE Declaration

The ultrasound system is fully in conformance with the Regulation (EU) 2017/745 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.

15 NOTICE

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

Mindray reserves the right to make changes in specifications and features shown herein, or discontinue the product at any time without notice or obligation. Contact Mindray Representative for the most current information