물 품 규 격 서

□ 입찰공고번호 : (학)일송학원 관리국 제2025-168호

□ 입찰건명 : 영상의학과(초음파실) Ultrasound Scanner(초음파 영상 진단기) 구매

□ 수요기관 : 한림대학교 동탄성심병원

□ 납품장소 : 수요기관 희망장소 입고도

□ 물품내역 등

품명(영문, 국문)	규격 및 사양	총 구매예정수량 (Q'TY)	1회 최대 발주수량	WARRANTY 기간
Ultrasound Scanner (초음파 영상 진단기)	A or B	1 Set	1 Set	검수(합격)일로부터 3년 종료월 말일 까지

□ 공통사항

1. 장비의 설치와 작동 및 교육은 무상으로 제공한다.

2. 수요기관 담당자 입회 하에 계약상대자는 제품의 설치 테스트 및 시험작동을 실시하여야 한다.

3. **무상 하자담보 책임기간은 물품 검수(합격)완료일로부터 *3년 종료월 말일 까지*를 기본 원칙으로 하며 계약상대자의 추가 제안에 따라 3년을 초과하여 설정할 수 있다.**

4. 무상 하자담보 책임기간 중 수요기관의 사정으로 인하여 부서 및 장비의 위치가 불가피하게 이동을 필요로 할 경우 설치 시 협의 하에 무상 또는 부득이한 경우 실비 기준으로 이루어진다.

5. 무상 하자담보 책임기간 중 중 공급된 장비의 부속품이 단종된 경우 수요기관이 인정하는 동등이상의 장비로 무상교체가 이루어져야한다.

6. 계약상대자는 어떠한 상황에서나 애프터서비스를 위하여 전문서비스 인력을 제공하여야 하며 애프터서비스를 위하여 교체 부품을 보관하여야 한다.

7. 계약상대자는 장비 납품 시 납품일을 기준하여 제품 제조년월이 6개월 이내인 장비를 납품 하고 납품장비에 해당 제조년월이 명시되어야 한다.

8. 기존 사용 중인 의료장비 철거 및 회수 또는 보상판매 조건으로 제안할 수 있다.

<규격서 A>

A. Features
- It is the top model in Canon's updated flagship.
- This system achieves high sensitivity and high quality by using state-of-the-art digital technology in the T/R section, which is the core of a diagnostic ultrasound system.
- High-speed, extremely flexible beamforming provides images with superior spatial resolution at higher temporal resolution

B. Specifications

Main System - General Information
High image quality made possible by a new image engine, High-Density Beamforming
 -High-speed, extremely flexible beamforming provides images with superior spatial resolution at higher temporal resolution
Outstanding operability thanks to the iStyle+advanced ergonomics concept
- Scan methods: Linear scan (some transducers can perform oblique scanning)
  Convex scan
- Monitor : High-definition 23-inch LED monitor
  Resolution : 1,920 × 1,080 Full HD
  Viewing angle : 178 degrees
  Response time (ms): typ. 14
  Contrast ratio: typ. 1,000 : 1

Imaging Modes
- 2D mode
- Color mode
- Spectrum Doppler
- Advanced Dynamic Flow
- CDI mode
- Power Angio mode

Precision Imaging
- Enhances ultrasound beam data by including information from adjacent scan lines
- It increases Natural structure enhancement

Differential Tissue Harmonic Imaging
- Simultaneous Transmission of 2 pulses at different frequencies
- It improves the frequency matching, beam density and focusing giving improved spatial and contrast resolution and Uniformity

ApliPure Plus
- Spatial Compounding Imaging in realtime is supported

Advanced Dynamic Flow
- It maximizes your diagnostic confidence by accurately outlining minute vascular details as demonstrated in these villi
- Advanced dynamic motion suppression algorithms that reduce flash artifacts

Quick Scan
- Quick Scan enables automatic gain and STC control for B mode as well as Velocity range and Base line shift

Beam

Full Focus

Ultra Side View Kit

Dicom 3.0

Gel Warmer

Breast Phantom

Tissue Specific Optimazation
TSO you can now adjust the speed of sound automatically to minimize beam distortion and to improve
imaging results and diagnostic outcome

Smart 3D
3D image can be generated from the 2D image and any input volume shape
Volume Color
Multi View
Volume View

Superb Micro-vascular Image (iSMI)
It is based on powerful intelligent algorithm applying similar concept to that used for
ultrsonic doppler signals
SMI effectively separates flow signals from overlaying tissue motion artifacts, preserving
even the subtlest low-flow components with unmatched detail and definition
Visualizes low-velocity blood flow at a high frame rate

Vascularity Index
This software calculates the display area and ratio of the Power Doppler image

Panoramic View
B/W images can be obtained with a wider field of view by moving the transducer in the lateral
direction

MicroPure kit
This kit enables MicroPure, which supports visualization of small structures

Elastography-FLR KIT
Image display
TwinView display of B-mode image and Strain image
Display of velocity profile during data acquisition
Parameter for strain image calculation
Size of the target region in which rigidity is to be evaluated

Shear Wave kit
Images representing the speed of propagation of tissue displacement (shear wave speed)
can be visualized (shear wave scan) by locally displacing tissues by transmitting a burst wave with
 high acoustic pressure
The following Shear wave display modes are available
· Speed : shear wave speed display (m/s)
· Elasticity : elasticity display (kPa)
· Propagation : propagation display
· Variance map

Shear wave measurement can be performed

Dispersion Map for Shear Wave (Viscosity Quantification)
This kit enables visualization of dispersion between frequencies for propagation speed for Shear Wave

Attenuation Imaging (Steatosis Quantification)
This kit enables visualization of ultrasound frequency-dependent attenuation coefficient within tissue

Quad view for SWE kit
This kit allows display of shear wave images in four-frame display

Bracket only Kit 680-152 (PVI-475BX)

Bracket only Kit 680-151 (PLI-705BX)

Bracket only Kit 680-148 (PLI-1205BX)

C. Consist of(per 1ea)

1.	Main Unit	1Set
2.	Imaging Mode	1ea
3.	Precision Imaging	1ea
4.	Differential Tissue Harmonic Imaging	1ea
5.	ApliPure Plus	1ea
6.	Advanced Dynamic Flow	1ea
7.	Quick Scan	1ea
8.	Tissue Specific Optimization	1ea
9.	Smart 3D	1ea
10.	Beam	
11.	Full Focus	
12.	Ultra WIde View Kit	
13.	Superb Micro-vascular Image (iSMI)	1ea
14.	Vascularity Index	1ea
15.	Panoramic View	1ea
16.	MicroPure kit	1ea
17.	Elastography-FLR KIT	1ea
18.	Shear Wave Kit	1ea
19.	Dispersion Map for Shear Wave (Viscosity Quantification)	1ea
20.	Attenuation Imaging (Steatosis Quantification)	1ea
21.	Quad view for SWE kit	1ea
22.	Bracket only Kit 680-152 (PVI-475BX)	1ea
23.	Bracket only Kit 680-151 (PLI-705BX)	1ea
24.	Bracket only Kit 680-148 (PLI-1205BX)	1ea
25.	DICOM Kit	1ea
26.	Gel Warmer	1ea
27.	Breast Phantom	1ea
28.	Operation & Service Manual	1ea
29.	Transducers	
	PVI-475BX Matrix Convex Transducer	1ea
	PVT-712BT Micro Convex Transducer	1ea

PLI-705BX Matrix Linear Transducer   1ea
PLI-1205BX Matrix Linear Transducer   1ea
PLI-2002BT Hockey-stick Linear Transducer   1ea
PLI-3003BX Matrix Linear Transducer   1ea

D. Remarks

1. 장비의 운송, 설치, 교육은 공급자가 책임진다.
2. 제품 하자에 관하여 검수합격일로부터 3년 종료월 말일까지 보증(Warranty)기간으로 한다.

<규격서 B>

A. Features

The ultrasound imaging system designed for abdomial, Vascular, obstetric, gynecology, neonatal, pediatric, urology, transcranial and small parts applications.

Exclusive architecture Combines the power of probes with a new cSound Imageformer
to enable confident diagnosis, comprehensive tools and concise workflow.

With access to raw image data. Users are able to compensate for variations in image acquisition by virtually rescanning the patient after they have left the exam room.

B. Specifications

1. Basic Console System
 1) Architecture
 2) 23.8" Wide screen High-Resolution HDU display
 3) 12.1" High resolution, Color, Touch LCD Screen
 4) 4 Active Probe Ports, 2 inactive probe storage ports
 5) Digital TGC
 6) One-handed adjustment of operator panel(with sealed QWERTY keyboard) position and hei
 7) Integrated 1TB hard drive and 128GB SSD storage
 8) Integrated DVD-R drive
 9) Integrated multiple USB port
 10) Integrated speakers with sub-woofer for premium sound
 11) Integrated Gel warmer
 12) 1GB CINE Momory
 13) Export JPEG, WMV(MPEG4), and AVI form

2. Operating Mode
 1) B-mode
 2) M-mode
 3) Color Flow Mode
 4) MVI (Micro Vascular Imaging)
 5) B Flow
 6) Extended Field of View
 7) Power Doppler Imaging
 8) PW Doppler
 9) CW Doppler
 10) Volume Modes
 11) Anatomical M-mode
 12) Coded Harmonic Imaging
 13) Coded Contrast Imaging
 14) Strain elastography
 15) Shear wave elastography
 16) UGAP

3. CrossXBeam
 1) Provide spatial compounding and 3,5,7 or 9 angle of spatial compounding
    Live side by side Display
 2) Compatible with SRI-HD, Coded Harmonic Imaging.

4. Speckle Reduction Imaging (SRI-HD)
 1) Speckle Reduction Imaging
 2) Provide multiple levels of speckle reduction
 3) Compatible with Side by Side DualView Display
 4) Compatible with all linear, convex, and sector transducers
 5) Compatible with B-Mode, Color, Contrast Agent and 3D/4D imaging

5. Raw Data Analysis
 1) Complete image flexibility allows stored image optimization and measurements such
    as B-mode, Doppler mode and Anatomical M mode or Provides for Voice control of
    scanner

6. Coded Harmonic Imaging (CHI)
 1) Enhances near-field resolution for improved small parts imaging as well as far-field
    penetration compared with typical harmonic imaging

7. Automatic Optimization (AO)
 1) Auto Optimize package uses actual image data to perform an instantaneous analysis
    of the anatomy, and then applies the optimum parameters through one-touch.

8. Auto CF/PW Positioning Feature
  1) "Vessel recognition for automated ROI placement and steering"

9. Anatomical M-Mode
  1) M-mode cursor can be adjusted at any plane
  2) Curved anatomical M-mode free (curved) drawing of M-mode generated from the
     cursor independent from axial plane

10. Advanced 3D
  1) Acquisition of Color data
  2) Automatic rendering
  3) 3D Landscape technology
  4) 3D Movie

11. Virtual Convex
  1) This technology provides linear transducer detail resolution in a convex field of
     view.
  2) Virtual Convex makes exams faster and easier by providing up to 20% more clinical
     information.

12. B Steer+
  1) Left / Right axial angle image for better needle visualization and access in vascular
     applications in the Linear transducer

13. Measurements & Calculations Package
  1) Real-time Doppler Auto Measurements / Calculations
  2) OB Measurements / Calculations
  3) GYN Measurements / Calculation
  4) Vascular Measurements / Calculations
  5) Urological Calcs

14. DICOM 3.0 Connectivity
  1) Supporting DICOM service classes
    a. Verify (SCU/SCP)
    b. Print (SCU)
    c. Store (SCU)
    d. Basic Modality Workist (SCU)

15. View
  1) Provides expansive anatomical views
  2) Enabled on all General Imaging transducers with Harmonic Imaging
  3) Standard caliper measurement& body marker function is available
  4) Display tools include zoom, pan and rotate
  5) Capable od field-of-view of 60cm

16. B-Flow
  1) This feature provides the high resolution and high frame rate of B-mode imaging
     with the ability to detect and display real-time homodynamic simultaneously, not
     overlay color flow image.
  2) Accumulation mode and period

17. Micro B-flow
  1) This feature provides the high resolution and high frame rate of B-mode imaging
     with the ability to detect and display real-time homodynamic simultaneously, not
     overlay color flow image for micro vessel.
  2) Accumulation mode and period

18. MVI (Micro Vascular Imaging)
  1) This feature provides the high resolution and high frame rate of power doppler
     mode imaging with the ability to detect micro vessel
  2) Accumulation mode and period

19. Radiant flow
    Easy, fast visualization of tiny vessels, displaying as a 3D effect

20. Auto IMT
  1) Auto IMT is an ultrasound software tool developed to measure thickness of the
     intima-media layers of the carotid artery, for assessing an asymptomatic patient's
     risk developing cardiovascular disease.

21. Scan Assistant
  1) Scan Assistant knows the next step of a scan and helps user.
  2) This customizable scanning program was built from actual uer feedback to enable
     you to focus on the important elements of an exam by doing the little things for
     user.

22. Start Assistant
  1) Automatically select category, probe, preset, or scan assistant from worklist exam
      description
  2) Learn the category, probe, preset, and scan assistant based on exam description

23. Compare Assistant
  1) Compare Assistant help streamline comparison to prior exams
  2) "Drive productivity for acquiring and reading the exam by designing a workflow
      that uses prior exam data."

24. Quantitative Flow Anaysis
   1) Provide tools for semi-quantitative assessment of inflammation in joints and vascularization in tumors.
   2) Ratio of 2D, color, power doppler and volume pixels over total ROI area.
   3) Maximum Ratio of 2D, color, power doppler and volume pixels in each ROI, and which frame that occurs in

25. Elastography
   1) Non-invasive method in which stiffness or strain images of soft tissue are used to detect or classify tumors
   2) Dual Imaging with B-Mode
   3) Dual Caliper between B-Mode and Elasto
   4) Reminder about Frame Reject & Noise Reject

26. Elastography Quantification
   1) Elastography Quantitative Analysis is to quantify color distribution numerically and provide a more objective information.

27. Shearwave Elastography
   1) Enabling non-invasive 2D quantitative assessment of tissue stiffness, this tool can be of particular value in evaluating soft tissue conditions.
   2) Available on Linear & Convex Probe
   3) User programmable measurement display in kPa and meters per sec
   4) Single and Dual view display

28. UGAP (Ultrasound Guided Attenuation Parameter)
   1) Measures liver attenuation* (attenuation coefficient [dB/cm/MHz]) by auto measure algorithm with reference B-mode
   2) Simple and 2D color map (attenuation color map and Measurement Position Indicator Map)

29. Hepatic Assistant
   1) Integrates two functions of Shearwave Elastography and UGAP to be run simultaneously on one screen.
   2) Provide both measurement result of Shearwave Elastography and UGAP to easily diagnose Liver Steatosis and Fibrosis.

30. Apps
   1) Photo Assistant
      "- Acquire and send photos of relevantanatomy
      - right from an Android tablet or phone"
      "- To provide valuable context for documentation and
        comparison after a procedure."
   2) Remote Control
      "- Ability to operate from a tablet or phone that has the Smart App loaded onto it."

31. Auto Abdominal Suite 1.0
   1) Auto Preset Assistant
      An artificial intelligence tool that is designed to improve the workflow by adjusting or suggesting Preset.
      Recognizes some anatomies by analyzing live B mode images and suggests or selects Presets.

2) Auto Abdomincal Color Assistant
An artificial intelligence tool that is designed to improve the workflow by adjusting or suggesting   Flow model for Color Flow/ Power Doppler Imaging mode.
3) Auto Renal Measure Assistant
An artificial intelligence tool that is designed to automatically suggest the placement for measurement calipers,   thus saving time for the user performing renal measurements. This Auto Renal Measure Assistant tool is designed to improve the workflow.

32. C1-6-D Convex Probe
1) Applications: Abdomen, OB/GYN, Pediatric, Peripheral Vascular, MSK
2) Frequency(MHz): 1-6

33. C3-10-D Micro convex Probe
1) Applications: Neonatal, Pediatrics, Vascular
2) Frequency(MHz): 2-11

34. L2-9-D Linear Probe
1) Applications: Small Parts, Vascular, Pediatric, Abdomen, MSK, Neonatal
2) Frequency(MHz): 2-10

35. L3-12-D Linear Probe
1) Applications: Vascular, Small Parts, Breast, Musculoskeletal, OB
2) Frequency(MHz): 2-11

36. L6-24-D Probe Hockeystick Linear Probe
1) Applications: musculoskeletal
2) Frequency(MHz): 6-20

37. ML4-20-D Matrix Array Linear Probe
1) Applications: Small Parts, Vascular, Pediatrics, Neonatal
2) Frequency(MHz): 3-16
38. Breast Phantom
39. Biopsy Guide for C1-6-D XDclear Convex Probe
40. Biopsy Guide for L2-9-D Linear Probe
41. Biopsy Guide for L3-12-D Linear Probe
42. Built IN Gel Warmer
43. Storage bins
44. O/S Manual

C. Consist of(per 1ea)

1	. Main Unit	1 Set
2	. Operating Mode	1 ea
3	. CrossXBeam	1 ea
4	. Speckle Reduction Imaging (SRI-HD)	1 ea
5	. Raw Data Analysis	1 ea
6	. Coded Harmonic Imaging (CHI)	1 ea
7	. Automatic Optimization (AO)	1 ea
8	. Auto CF/PW Positioning Feature	1 ea
9	. Anatomical M-Mode	1 ea

10	. Advanced 3D	1 ea
11	. Virtual Convex	1 ea
12	. B Steer+	1 ea
13	. Measurements & Calculations Package	1 ea
14	. DICOM 3.0 Connectivity	1 ea
15	. View	1 ea
16	. B-Flow	1 ea
17	. Micro B-flow	1 ea
18	. MVI (Micro Vascular Imaging)	1 ea
19	. Radiant flow	1 ea
20	. Auto IMT	1 ea
21	. Scan Assistant	1 ea
22	. Start Assistant	1 ea
23	. Compare Assistant	1 ea
24	. Quantitative Flow Anaysis	1 ea
25	. Elastography	1 ea
26	. Elastography Quantification	1 ea
27	. Shearwave Elastography	1 ea
28	. UGAP (Ultrasound Guided Attenuation Parameter)	1 ea
29	. Hepatic Assistant	1 ea
30	. Apps	1 ea
31	. Auto Abdominal Suite 1.0	1 ea
32	. C1-6-D Convex Probe	1 ea
33	. C3-10-D Micro convex Probe	1 ea
34	. L2-9-D Linear Probe	1 ea
35	. L3-12-D Linear Probe	1 ea
36	. L6-24-D Probe Hockeystick Linear Probe	1 ea
37	. ML4-20-D Matrix Array Linear Probe	1 ea
38	. Breast Phantom	1 ea
39	. Biopsy Guide for C1-6-D Convex Probe	1 ea
40	. Biopsy Guide for L2-9-D Linear Probe	1 ea
41	. Biopsy Guide for L3-12-D Linear Probe	1 ea
42	. Built IN Gel Warmer	1 ea
43	. Storage bins	1 ea
44	. O/S Manual	1 ea

D. Remarks

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