| | USG Machine (Portable) with Convex, Linear and Cardiac probes | | | | |
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| **S.N.** | **Purchaser's Specifications** | | **Bidder's Compliance** | | |
| | **USG Machine (Portable) with Convex, Linear and Cardiac probes** | | Yes /No | Ref Doc Page No. | Remarks |
| | **Name of Bidder:** | | | | |
| | **Manufacturer:** | | | | |
| | **Type / Model:** | | | | |
| | **Country of Origin:** | | | | |
| **1** | **Description of Function** | | | | |
| 1.1 | A fully digital Colour Doppler ultrasound DICOM compatible imaging system for Radiology widely used in diagnosis of abdomen, OB/Gyn, vascular, Cardiac and small parts applications. | | | | |
| **2** | **Operational Requirements** | | | | |
| 2.1 | The USG System shall operate on mains AC power supply as well as internal Li-ion rechargeable battery. The machine is intended to be integrates onto system cart or use stand-alone. | | | | |
| **3** | **System Configuration** | | | | |
| 3.1 | Cart-based point-of-care, portable ultrasound scanners with laptop style console design, with touchscreen control combined with conventional user-control panel with 3 probes, 1 unit of black and white video thermal printer and mobile trolley. | | | | |
| **4** | **Technical Specifications** | | | | |
| 4.1 | System shall provide all-digital broadband beam forming with maximum display depth shall be at least 30 cm. | | | | |
| 4.2 | The system must be capable of supporting Resolution adaptive image processing technique that performs analysis at the pixel level eliminating speckle noise artefact and dynamically enhancing tissue textures, margins and borders. | | | | |
| 4.3 | System should have advanced measurement technics both manual and automatic for all applications. | | | | |
| 4.4 | Multiple preloads as well as user configurable application presets should be available. | | | | |
| 4.5 | The system shall be upgradable to 3D/4D imaging and shall be ready to use after plugging in the 4D probe. | | | | |
| 4.6 | The system must have 1024 or more digital processing channels. | | | | |
| 4.7 | The system must support broadband Phased array, Convex and Linear array transducers. | | | | |
| 4.8 | System shall provide 232 dB or more input dynamic range. | | | | |
| 4.9 | High-definition (HD) colour LCD monitor of at least 15 inches, with reflection filter and protection should be available. | | | | |
| 4.10 | Must be laptop style fold-down display with lock mechanism for the screen safety. Should be lightweight with weight not exceeding 5 kgs without battery for easy transportation. | | | | |
| 4.11 | Should have Colour LCD touch panel of at least 8" for interactive operation or physical keyboard and control panel buttons. | | | | |
| 4.12 | The System must have 6 TGC slides or Virtual TGC curve for functionality at any depth. | | | | |
| 4.13 | System must support Tissue Harmonic Imaging in Phased Array, Linear Array and convex array transducers. | | | | |
| 4.14 | The system must have in-built image management system with 500GB | | | | |

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| | Hard disk drive (HDD) or higher better memory like Solid state drive (SSD) with internal or external CD/DVD- drive. | | | |
| 4.15 | The System must have 256 grey shades. | | | |
| 4.16 | Cine memory of 250 frames for cine loop playback. | | | |
| 4.17 | Frame rate: atleast 600 fps in B mode and >300 fps in color mode. | | | |
| 4.18 | The system must have following Image modes:<br>2D, CW, PW, Colour Doppler, THI, Colour Power Doppler, M-Mode, Anatomical M-mode and full Colour Doppler echocardiography system, 2D Duplex. | | | |
| 4.19 | Colour coded tissue Doppler must be available with quantification for Myocardiac thickness and strain rate imaging as option. | | | |
| 4.20 | System must be upgradable to Stress Echo and ECG features. | | | |
| 4.21 | System must have needle enhancement feature, Auto NT, Tomographic display, etc. | | | |
| 4.22 | System shall be DICOM ready and capable of being interfaced with HIS/RIS/PACS. | | | |
| 4.23 | Following transducers or similar frequency range to be quoted as standard:<br>• Broadband curved array transducer of 2-5 ± 1 MHz.<br>• Broadband linear array transducer 4-10 ± 1 MHz.<br>• Phased Array, Cardiac Probe (Adult) 2-5± 1 MHz. | | | |
| 4.24 | To ensure maximum clinical utility, the manufacturer must demonstrate the capability of the system to successfully perform in the following types of applications:<br>• Abdominal<br>• Small parts and superficial<br>• Paediatric<br>• Musculoskeletal<br>• Obstetrical<br>• Cardiac<br>• Prostate<br>With capability to be upgraded with additional software applications and licences. | | | |
| 4.25 | Equipment with zoom functionality available. | | | |
| 4.26 | Screen annotations capture patient data, date and time, scanning protocols, probes. | | | |
| 4.27 | Text annotations and body markers and image orientation indicator. | | | |
| 4.28 | Transducer ports: at least three active transducer ports permanently available; capability of electronic switch between probes. | | | |
| 4.29 | System should be DICOM 3.0 compatible and capable of connectivity to any PC via built in LAN port for Image Transfer. | | | |
| 4.30 | The system should have USB transfer interface for archival (DICOM and PC format) and Video Output port: High-definition multimedia interface (HDMI)/ Display port. | | | |
| 4.31 | Battery duration: Internal battery with backup duration of minimum 1 hours under normal use conditions. | | | |

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| **5** | **Accessories, spares and consumables** | | | |
| 5.1 | High quality trolley compact and lightweight with lockable wheeled cart, easy to transport with multi transducer connector up to 3 transducers from same manufacturer – 1 unit | | | |
| 5.2 | Black and white video thermal printer – 1 unit | | | |
| 5.3 | Consumables:<br>• Ultrasound gel – 2 bottles<br>• High Density printing paper – 5 rolls | | | |
| 5.4 | All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above). | | | |
| **6** | **Operating Environment** | | | |
| 6.1 | The system offered shall be designed to be stored and to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc. | | | |
| 6.2 | Power supply: 220 – 240 VAC, 50Hz. The power cable must be at least 3 meters in length with the three-pin plug type used in hospital. | | | |
| **7** | **Standards and Safety Requirements** | | | |
| 7.1 | It Should be supplied from a manufacturing company having ISO 9001:2015 for General quality management and ISO 13485:2016 certification for Medical Devices Quality management systems. | | | |
| 7.2 | Proof of regulatory compliance, as appropriate, per the product's risk classification, CE (Conformité Européenne) for Europe **and** USFDA approved product certificate. | | | |
| 7.3 | Electrical safety conforms to standards for Electrical Safety IEC 60601-2-37 requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment. | | | |
| **8** | **User Training** | | | |
| 8.1 | Must provide hands on training of at least 15 days to doctor for operational, calibration, safe use, day to day routine checkup and maintenance etc. for proper use of supplied equipment. | | | |
| 8.2 | Must provide technician training (including Onsite repair & maintenance training and operational training to the Hospital's Biomedical Engineer, Biomedical technicians on how to use and maintain the equipment). | | | |
| **9** | **Warranty** | | | |
| 9.1 | Comprehensive warranty for 2 years after acceptance. | | | |
| 9.2 | Commitment letter from the bidder as well as from the manufacturer regarding the availability of parts, transducers, accessories and service support for minimum of 7 years. | | | |
| **10** | **Maintenance Service During Warranty Period** | | | |
| 10.1 | During the warranty period supplier must ensure preventive and corrective/breakdown maintenance whenever required. | | | |
| **11** | **Installation and Commissioning** | | | |
| 11.1 | The bidder must arrange for the equipment to be installed and | | | |

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| | commissioned by certified or qualified personnel, any perquisites for installation to be communicated to the purchaser in advance, in details. | | | |
| **12** | **Documentation** | | | |
| 12.1 | User (Operating) manual in English. | | | |
| 12.2 | Service (Technical / Maintenance) manual in English. | | | |
| 12.3 | Certificate of calibration and inspection from factory. | | | |
| 12.4 | Certificate of calibration and inspection from factory. | | | |

**Note:**

- Bidder must completely fill Technical Specification Form (TSF). Only Yes/No/ all comply should not be written. Page number in the catalogue of all the required parameters must be clearly mentioned and highlighted. All the letters asked must be submitted and failure in doing so will lead to rejection of bid from technical committee.
- Bidder must provide a minimum of 2 years of experience in the supply, installation and maintenance of similar equipment along with verifiable client references.