Technical Specification of Colour Doppler Ultrasound Machine

S.N.	Purchaser's Specifications	Bidder's Compliance Sheet		
	Colour Doppler Ultrasound Machine	**Yes/ No**	**Ref Docs Page No.**	**Remarks**
	Manufacturer			
	Brand			
	Type/Model			
	Country of Origin			
1	**Description of Function**			
1.1	A general purpose Portable Colour Doppler Ultrasound imaging system. Widely used in diagnosis of abdomen, obstetrics, gynaecology, Urology, Vascular and small parts.			
2	**Operational Requirements**			
2.1	It shall operate on mains AC power supply.			
3	**System Configuration**			
3.1	System shall come with main unit, 2 probe, 1 unit of black and white video thermal printer.			
4	**Technical Specifications**			
4.1	Main applications: OB/GYN, abdominal, Urology, Vascular and small parts.			
4.2	The system shall have latest generation with Minimum grey scale resolution to be 256 with 1024 or more digital processing channels.			
4.3	256 Grey shades for sharp contrast resolutions.			
4.4	Scan modes: M-mode, B-mode and 2-D, Colour Doppler, Pulsed wave Doppler, Power Doppler.			
4.5	Tissue Harmonic Imaging: System shall have Harmonics on the probe following modes in harmonic with separate setting for trapezoidal image.			
4.6	Automated gain control for additional level of flexibility to image quality control.			
4.7	Near and far gain adjustable.			
4.8	Contrast, adjustable.			
4.9	Shall have facility for image zoom, freeze, text annotation. System should have both online as well as offline zooming facility.			
4.10	Focus: auto adjustable.			
4.11	Main unit with in-built 15" or more adjustable High resolution LED/LCD monitor with automatic Brightness adjustable. In built Alphanumeric Hard Key Board.			
4.12	Back light Keyboard and integrated speakers.			
4.13	System should support transducer like Linear, Convex, and Endocavity without need of any extra hardware and software. System should have at least 2 active ports connectivity.			
4.14	Various maps for pre and post processing.			
4.15	System should have ability to enhance tissue margins and improve contrast resolution by reducing artefacts and improving visualization of texture patterns and needle tip			

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	within the image.			
4.16	Cine memory of 250 frames for cine loop playback.			
4.17	Should have multiple USB port connectivity.			
4.18	Frame grabber facility for post analysis.			
4.19	Frame rate: not less than 350fps.			
4.20	Display depth: minimum 30cm. or more.			
4.21	Facility for high definition digital acquisition, review and editing of complete patient studies.			
4.22	The system shall accept most of the common probe types of: convex array, linear array, Endocavity probe .			
4.23	Application specific examination protocols with common setting related to image display / adjustment, annotation & measurements.			
4.24	Obstetric analysis: BPD, CRL, AC, HC, FL , GS, AFI, etc. for Estimation of Gestational Age and Foetal Weight, Heart Rate, growth chart, Obstetric Doppler Calculation (MCA, umbilical artery etc.) and OB/GYN report system.			
4.25	Body markers.			
4.26	Time & slope for M-Mode.			
4.27	With tissue optimization function.			
4.28	With function to reduce patch noise and other image artefacts without compromising quality of images.			
4.29	Dynamic range, selectable up to approximately 200dB.			
4.30	Image storage: System should have be able to store at least 250GB data/image on main unit.			
4.31	System shall be DICOM ready and capable of being interfaced with HIS/RIS/PACS.			
4.32	Facility for future upgradeability, All new software.			
4.33	System should have Tissue Specific Imaging and Trapezoid Imaging.			
4.34	System should have 3D/4D Imaging.			
4.35	It shall come with a company made trolley on caster to hold the main unit on top with provision of at least 2 probe holder, thermal printer.			
4.36	The machines should support broad band probes spanning with frequency range from 1-16 MHz			
4.37	1 unit of broad bandwidth of 1 - 6MHz, ±1convex array probe for OB/GYN and abdominal application.			
4.38	1 unit of broad bandwidth of 3 - 12MHz,±1 linear array probe for Breast, EM, MSK, Vascular, Small Parts			
4.39	Should have Space and Frequency Compounding Imaging.			
4.40	Should have Panoramic Imaging & One Key Optimization.			
5	**Accessories, spares and consumables**			
5.1	**Accessories:** • Black and white video thermal printer with 10 rolls of high density recording paper			
5.2	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and			

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	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 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 fitted with appropriate plug. The power cable must be at least 3 metre in length.			
6.3	Must supply suitable online UPS for at list 30 min battery backup for the entire system.			
7	**Standards and Safety Requirements**			
7.1	Must submit ISO 13485 or ISO 9001 **AND**			
7.2	CE (93/42 EEC Directives) or 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 user training (including how to use and maintain the equipment).			
9	**Warranty**			
9.1	Comprehensive warranty for 1 years' complete parts (Including Reusable accessories).			
10	**Maintenance Service During Warranty Period**			
10.1	During the warranty period supplier must ensure preventive maintenance and corrective/breakdown maintenance whenever required.			
11	**Installation and Commissioning**			
11.1	The bidder must arrange for the equipment to be installed by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.			
12	**Documentation**			
12.1	User (Operating) manual in English.			
12.2	Service (Technical / Maintenance) manual in English.			
12.3	List of important spare parts and accessories with their part number and costing.			
12.4	Certificate of calibration and inspection from factory.			

Bidder must completely fill the Technical Specification Form (TSF). Only Yes/no/all complies should not be written. Page number in the catalogue of all the required parameters must be clearly mentioned and highlighted. Failure in doing so may lead to rejection of bid from technical committee

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Technical Specification of 500mA LF X-Ray Machine

S.N.	Purchaser's Specifications	Bidder's Compliance Sheet		
	X-Ray Machine 500 mA	Yes/No	Ref Docs Page No.	Remarks
	Manufacturer			
	Brand			
	Type/Model			
	Country of Origin			
1	**Description of Functions**			
1.1	A general purpose X-ray machine 500mA LF with Horizontal Bucky Table.			
2	**Operational Requirements**			
2.1	It shall be suitable to be used for adult and pediatric patient in general radiography examination and it shall operate on single/three phase AC power supply.			
3	**System Configurations**			
3.1	X-ray HT transformer, Control Console, Column Stand HBT Complete Machine with Horizontal Bucky Table and all standard accessories.			
4	**Technical Specifications**			
4.1	Radiography rating at least 500mA and 125KVp rating.			
4.2	Large Focus min.100 and 200mA			
4.3	Radiography KV 40 to 125 KVp, Variations in steps of 1 KVp.			
4.4	Exposure time at least 24 step electronic timer from 0.02 to 5 seconds			
4.5	Fluoroscopy rating mA 0 to 5mA stepless; KV – 40 to 100 KVp			
4.6	X-ray tube 20/40KW double focus rotating anode.			
4.7	HT transformer with silicon rectifiers supporting single and double tube rotation as required.			
4.8	Display Kv, mA and mAs			
4.9	LV composition 20 % of input voltage			
4.10	Power composition 220 single phase to 3 phase 415 volts, 330 KVA 50 HZ maximum allowable line resistance in 415V line is 0.25 ohms			
4.11	Display should be LED based			
4.12	Must have X-ray Exposure switch			
4.13	HBT should come with Bucky Grid			
4.14	Column Stand should be 6 fit to 7 fit			
4.15	Shall come with overload protection device.			
4.16	It shall come with tube overload and overheat protection.			
4.17	Longitudinal travel: approx. 1750mm.			
4.18	Vertical travel: from in the range 630 -1850mm.			
4.19	Movement arrested by electromagnetic brakes.			
4.20	Anode heat capacity shall not be less than 200 KHU.			

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S.N.	Purchaser's Specifications	Bidder's Compliance Sheet		
4.21	Anode rotating speed: not less than 3000 rpm.			
4.22	Cooling method passive or forced air and/or oil cooling.			
	Collimator			
4.23	Manually adjustable.			
4.24	Manually selectable filters.			
4.25	Light localizer, lamp with timer.			
4.26	Built-in light switch should be provided.			
4.27	Turning angle should be min +/- 45 degree.			
4.28	Halogen lamp.			
	Radiography Patient Table			
4.29	Radiography table shall be fixed height, 4-way floating top type with foot switch control.			
4.30	Come with grid and cassette tray, with grid ratio: not less than 12:1. Grid line number: 40 line/cm. Focus distance: 115cm.			
4.31	Cassette size: accept all sizes from cassette 13x18 cm to 35x43 cm type.			
4.32	Table top to film distance: approx. 7cm.			
4.33	Table top transverse movement : approx. ±14cm.			
4.35	Table longitudinal movement: approx. ± 29cm.			
4.36	Table top dimension: approx. 2000 mm x 800 mm.			
4.37	Table movement arrested by electromagnetic brakes.			
	Floor Mounted Bucky Stand			
4.38	Vertical travel: from in the range 460-1700mm.			
4.39	Moving Grid with Grid ratio not less than 12:1. Grid line number: 40 lines/cm.			
4.40	Movement arrested by electromagnetic brakes.			
5	**Accessories, Spare Parts and Consumables**			
5.1	**Accessories:** • Lead apron-01 no.			
5.2	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: Should work in 220V to 440V power supply			
7	**Standards & Safety Requirements**			
7.1	Must submit ISO 13485/NS-EN ISO 13485 AND GMP			
7.2	Must submit CE approved product certificate 93/47/EC or USFDA approved product certificate.			
7.3	Shall meet:			

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S.N.	Purchaser's Specifications	Bidder's Compliance Sheet		
	• IEC 60601-1-3 - Part 1: General Requirements for safety - Collateral Standard: General Requirements for Radiation Protection in Diagnostic X-Ray Equipment. • IEC 60601-2-7 - Part 2-7: Particular Requirements for the Safety of High-Voltage Generators of Diagnostic X-Ray Generators.			
8	**User Training**			
8.1	The Supplier shall conduct user training for this equipment to enable operators to use the equipment properly. The training shall include the use of all operational functions of the equipment, as well as routine checks and maintenance expected by users.			
9	**Warranty**			
9.1	Comprehensive warranty for 1 years after acceptance.			
10	**Maintenance Service During Warranty Period**			
10.1	During warranty period supplier must ensure preventive maintenance & corrective/breakdown maintenance whenever required.			
11	**Installation and Commissioning**			
11.1	The bidder must arrange for the equipment to be installed by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.			
12	**Documentation**			
12.1	User (Operating) manual in English.			
12.2	Service (Technical / Maintenance) manual in English.			
12.3	Bidder's must submit original catalogue.			
12.4	Certificate of calibration and inspection from factory.			

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