

कार्यालय महानिदेशक, चिकित्सा एवं स्वास्थ्य सेवायें, उ०प्र० लखनऊ।

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संख्या:-८फ/क्यू०सी०-८०९/

लखनऊ: दिनांक: सितम्बर, 2016

संशोधित निविदा सूचना

महानिदेशालय के पत्र संख्या:-८फ/क्यू०सी०-८०९/३५४७, दिनांक ०५.०९.२०१६ द्वारा मात्रा अनुबंध के अंतर्गत डिजिटल रेडियोग्राफी मशीन उपकरण की आपूर्ति/स्थापना कराये जाने हेतु निविदा आमंत्रित की गयी थी।

उक्त निविदा के मानकों को पूर्ण रूप से निम्नानुसार संशोधित किया जाता है :-

TECHNICAL CHARACTERISTICS

1. Unit should be High frequency Digital Radiography system with rotating anode X-Ray tube.
2. 3D ceiling suspended stand with Auto tracking and Auto Positioning.
3. 2 separate detectors be provided. One in table and one in the vertical bucky each.
4. System should have following features.

A. HIGH FREQUENCY GENERATOR:

Generator should be of latest technology with high frequency 40 KHz or more

X-Ray Generator -

- Constant Power output of 80 KW or more.
- KV range should be 40 to 150KV in 1KV/step.
- mA output: 1000 mA at 80 KV or more.
- It should have solid state automatic exposure control device.

B. TUBE:

- A Dual focus Rotating anode X-ray tube.
- At loading of 80 KW Large Focus should be - 1.3 mm or less and small focus at a loading of 30 KW - 0.6 mm or less.
- Large Anode Heat storage capacity for high patient throughput (300 KHU or more).
- Multi leaf collimator having halogen lamp / bright light source and auto shut provision of the light.
- HV Cable: 1 Pair of 12 meter HV cable.

C. FULLY INTEGRATED X-RAY GENERATOR CONSOLE CONTROL:

- System should be fully integrated. All the exposure factors should be controlled from the image acquisition computer and exposure parameters information should be attached to acquired image in DICOM format.
- System should have 500 or more Anatomical Programs (APR).
- Anatomical Programs should be flexible and should be editable by user according to his/her convenience.
- Exposure interlocks and self-diagnostic messages should be available on Image acquisitions computer for easy troubleshooting of the system.

D. STAND:

- 3D- Ceiling Suspended tube stand should be a new generation stand providing the user three-dimensional movements of the tube head covering a huge area. Noiseless and swift up/down movement of the tube head should be provided.

- Stand should have Auto tracking facility with table & vertical bucky stand.
- Stand should have motorized Longitudinal, Transverse and vertical movement with automatic stop. It should have Tube Head Rotation along its axis.
- Movements of stand should be:
 - Longitudinal movement motorized: 2500mm (Tolerance: $\pm 10\%$).
 - Transverse movement motorized: 1500mm (Tolerance: $\pm 10\%$).
 - Vertical up/down movement motorized: 1000mm (Tolerance: $\pm 10\%$).
- Tube head Rotation (along with Vertical Column axis): $\pm 90^\circ$
- Tube head rotation along Horizontal axis - $\pm 90^\circ$
- Smart collision avoidance system should be provided.
- Manual override facility for x and y axis.
- Electromagnetic locks should be available for comfortable operations.
- Digital touch based display should be available on the X-ray tube/Collimator
- Assembly at least with following features:
 - Display and control of Exposure parameters like KV and MAS
 - Display and control of Mechanical parameters like SID (Source to Image distance) and tube Inclination
 - Patient position guide image
 - The auto tracking system should also be capable of doing motorized tracking with Vertical Bucky Stand during special cases.

E. **TABLE:**

- Horizontal table with floating tabletop and adjustable height should be provided. Tabletop should have three-dimensional movement, for ease of operation and use by patients. (6 way movements)
- Table should be provided with Inbuilt FPD (FLAT PANEL DETECTOR) beneath the tabletop having manual movement. It should have electromagnetic locking facility and should be unlocked by the footswitch for its movement.
- Transverse and longitudinal movements of the tabletop should be locked by electromagnetic locks.
- Table should have up/ down motorized movement.
- Movements of table top should be: Transverse movement: 18cm or more, longitudinal movement: 45cm or more. Height adjustment facility should be available.
- Maximum weight carrying capacity for the table during up/down movement should be 200Kg or more.

F. **VERTICAL BUCKY (VB) STAND:**

- Floor mounted Motorized Vertical bucky stand should have inbuilt FPD (FLATPANEL DETECTOR) for lung and skeleton x-ray examinations. It should have user friendly design and handling.
- VB stand should have provision to do chest radiography with and without grid.
- Motorized Tilting should be -15 degree to + 90 degree.

G. **FLAT PANEL DETECTOR** (Each for Table bucky and vertical bucky) :

- A complete imaging solution with cutting edge of performance integrated with X-ray systems.

Specifications:

- The detector should be flat panel type with A-Si (amorphous silicon) and CsI for scintillation.
- Should be monolithic (Single piece) un-tiled flat panel detector.
- Size of both detectors must be 43cm x 43cm or more.
- Active image matrix 2.6 K x 2.6 K or more.
- A/D should be 14bit or more.
- Pixel size should be 150 μm or less.
- Detector resolution should be 2.5 lp/mm or more.
- DQE (Detector Quantum Efficiency) should be more than 65% at zero line pair.

H. **IMAGE ACQUISITION SOFTWARE:**

SOFTWARE provides complete control of all image capture functions within the examination room, enhancing the entire workflow by delivering diagnostic images instantly, and allowing users to move X- ray images electronically

to remote workstations, image archives, and printers, also has the super excellent performance on image quality control. Image Acquisition Software should be from OEM of parent company.

I. IMAGE ACQUISITION AND PROCESSING:

- Digital image processing technology
- Preview image should be available in less than 5 seconds.
- Processed image should appear in less than 8 seconds.
- Exam Specific Algorithms image processing for consistent image quality of all body parts.
- Automatic image optimization
- Image harmonization algorithms for uniform images.
- Preset image processing tools for different anatomy
- Preset GAMMA correction table with manual override, Image cropping, Image mirror, and rotate.
- Image annotation with circle, square, rectangle, Arrow markers Add image accept/reject comments
- Rejected images archival with provision of converting them to Accepted images.
- Separate log for Rejected, Accepted and Printed images.
- True size for printing
- User defined printing formats.
- Should have high image storage capacity with 1TB HDD or more.

J. DOSE REDUCTION:

- Advanced noise reduction and image enhancement technology for best image quality at minimum dose.

K. EXCELLENT MAINTAINABILITY

- Remote online system diagnosis
- Remote online software upgrade
- Image quality control tools
- Easy and quick Offset and gain calibration with bad pixel removal algorithm.
- Automatic programmed offset calibration for best image quality.

L. FULL DICOM 3.0 COMPATIBILITY

- Get DICOM work list from HIS/RIS
- Store Images through PACS network system
- Support user defined format DICOM image print
- Support DICOM MPPS

M. IMAGE MANAGEMENT

- Resend/ Reprint image
- Send/print queue management
- Re-preview image
- Protect patient record
- Rejected image management

N. IMAGE STITCHING:

- Auto Image stitching software should be provided for both horizontal table and vertical stand for extra long limb imaging; complete spinal column etc.
- At least 3 or more images should be stitched together.

O. MONITORS:

- 2 No. 19" or more High Brightness Monochrome LED Medical grade monitor should be provided

P. ADDITIONAL WORK STATION:

Additional workstation should be provided. It should have following features:

- DICOM connectivity
- Image review

- Image processing
- Patient Reporting
- Image SEND, RECEIVE, PRINT facility
- Should have DIOCM connectivity for existing PACS, RIS system.
- Should have large image archival capacity (at least 1TB HDD).
- User's interface-manual
- Should maintain nominal temp and the heat should be disbursed through a cooling mechanism.
- Power Supply 230 V , AC, 50Hz. 15 Amps, 3 phase/Single Phase, Line resistance less than 0.4 ohms.
- Line regulation of $\pm 10\%$.
- UPS of 6 KVA rating with half hour back up for console and Laser imager should be supplied.

6. STANDARDS AND SAFETY

- Should be US FDA approved with 510K number for whole system and model number or name of the quoted model should be mentioned on the certificate
- Manufacturer should have ISO 13485 certification for quality standards.
- Electrical safety conforms to the standards for electrical safety IEC 60601-1-General requirements.
- Shall meet internationally recognized standard for Electromagnetic Compatibility (EMI/EMC) for electrometrical equipment: 61326-1.
- Certified to be compliant with IEC 61010-1-3, IEC 61010-1-2, IEC 61010-2-54, IEC 61010-1-6 and IEC 62304
- AERB type approved.

7. WARRANTY AND MAINTENANCE

- Warranty - 5 Years
- CMC - 5 years
- Minimum 4 Preventive Maintenance visits annually.
- All Breakdown calls to be attended within 24 hrs of registration.
- The spare price list of all spares and accessories (including minor) required for maintenance and repairs in future after guarantee / warranty period should be attached.

8. TRAINING AND INSTALLATION

- Pre-installation requirement: - Three phase stable power supply.
- 4 No. BARC Approved whole body lead aprons and pair of Gloves, 1 Gonad Shield, 1 Thyroid shield .
- Training for operation of the machine should be provided to the end user whenever needed free of cost.

9. DOCUMENTATION

- Should provide 2 sets (hardcopy and soft-copy only by email to cmsd.dghealth@gmail.com with cc to bme.uphssp@gmail.com for centralized record at CMSD) of:-
- User, technical and maintenance manuals to be supplied in English language along with machine diagrams.
 - List of equipment and procedures required for local calibration and routine maintenance;
 - Service and operation manuals (original and copy) to be provided;
 - Advanced maintenance tasks documentation;
 - Certificate of calibration and inspection
 - List of essential spares and accessories. with their part numbers and cost.

10. Other Terms and condition

- The firm will render on-site training to doctor and technicians
- All software up-gradation should be provided free of cost to the institute as and when available.
- Operating manual, service manual along with schematic diagram to be provided.
- image quality assurance as per latest IPEM standard.
- All the civil works (false ceiling with appropriate LED type lighting arrangement, vitrified tile floor; ceramic tiling on walls). Required 3 No's 1.5 ton Inverter type air conditioners(Split AC), furnitur

computer table, storage facility, minimum 5 revolving chair, other required furniture for work station and console electric alteration/fixation pertaining to installation of the machine will be the responsibility on the firm. The institute however shall provide the room for installation and one electrical point of supply. At least one 4 Film LED view box, Turnkey work complete along with all required radiation protection in all respect will be responsibility of bidder.

- During warranty and CMC period all required spares and machinery consumables etc. which are required to ensure functionality of machine are responsibility of bidder. No extra payment will be made for the same.
- To protect the machine from rodents and pests the bidder shall ensure regular preventive measures during warranty and CMC period and quoted rates for the same must be inclusive in the price.
- The system should be supplied with Laser imager camera for printing (DICOM Compatible) compatible to print all size of film with 500 DPI or more resolution. It should have configured with at least 3 trays which allowing printing with multiple film sizes. At least 3 bin film sorter is required to increase work flow.
- For evaluation purpose the size of the installation site size for turnkey project on an average 450 sq feet will be considered however, due to multiple site involved, the exact space available for individual site cannot be specified and would vary from site to site. It is the responsibility of the bidder to bear the actual cost involved.
- One 125 KVA DG set of reputed make with AMF panel complete with in all respect (Installation & cabling to DR room).
- Supply and installation of one servo control stabilizer 100 KW or more for control of fluctuation in voltage.

निविदा की समय सारणी को निम्नवत् संशोधित किया जाता है :-

संशोधित समय सारणी, क्यू0सी0-809		
विवरण	पूर्व निर्धारित दिनांक व समय	संशोधित दिनांक व समय
निविदा विक्रय की तिथि	09 सितम्बर, 2016 से 29 सितम्बर, 2016	09 सितम्बर, 2016 से 06 अक्टूबर, 2016
निविदा पढ़ने की तिथि	30 सितम्बर, 2016 को अपरान्ह 2:30 बजे तक	07 अक्टूबर, 2016 को अपरान्ह 2:30 बजे तक
निविदा खुलने की तिथि	30 सितम्बर, 2016 को अपरान्ह 3:00 बजे	07 अक्टूबर, 2016 को अपरान्ह 3:00 बजे

निविदा की शेष नियम व शर्तें यथावत् रहेगी।

(सुरेश चन्द्र)
निदेशक (भण्डार)

संख्या:-8फ/क्यू0सी0-809/ 4153-55 तददिनांक।
प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित :-

1. डॉ अवधेश रावत, एन.आई.सी. उ0प्र0 लखनऊ को इस आशय से प्रेषित कि निविदा की संशोधित सूचना को वेबसाइट :- www.dghealth.up.nic.in एवं uphealth.up.nic.in पर अपलोड करने का कष्ट करें।
2. संयुक्त निदेशक (मुख्यालय), स्वास्थ्य भवन, लखनऊ / नोटिस बोर्ड पर चर्या हेतु।
3. प्रभारी, कम्प्यूटर सेल, कार्यालय, प्रमुख सचिव, विकित्सा स्वास्थ्य एवं परिवार कल्याण, उ0प्र0 शासन।

(सुरेश चन्द्र)
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