Notice Inviting e-Tender

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Procurement, supply and installation of Portable Hand Held Digital X-Ray machines in the Hospital and Medical College of the Government of West Bengal

(Submission of Bid through *online*)

Bid Reference No.: WBMSCL/NIT-509/2025	Dated-17.06.2025

The following amendment have been made in the tender document,

Amendment –II (Revision of Technical Specification)

The revised technical specifications for the item is given below,

Technical Specifications

Ultraportable Hand held Digital X-Ray Kit

Basic Requirements

1. Ultraportable handheld digital X-ray kit must be composed of Handheld X-ray generator, X-ray generator stand, flat panel X-ray detector, X-ray detector stand and acquisition system.
2. The System should be capable of taking X-Rays of maximum human anatomies.
3. The radiation exposure time should be settable between 0.04 sec to 2.0 sec, with varying setting provision to allow imaging of any anatomy with minimal radiation exposure as per ALARA (as low as reasonably achievable) guidelines.
4. System should be able to acquire optimal CXR at100 cm to 150 cm.
5. X- Ray should be AERB approved and CDSCO approved as mended under Medical Device Regulation rules 2017 and as updated as on date. The device should be manufactured at site compliant with the requirements of ISO 13485 - Valid certificates to be provided in this regard.
6. Detector should be approved by CDSCO as mended under Medical Device Regulation Rules 2017 and as updated as on date. The valid certificates to be provided.

7. The system should be compatible with any CAD.
8. The complete system must be offered with 3 years of comprehensive onsite warranty followed by 3 years CMC. Details of warranty and CMC are as following. (For details on warranty coverage, the tender terms and conditions must be referred) –
    a. System will be at various locations in the country – Onsite warranty and service support to be provided.
    b. Any Issue should be resolved between 3 to 5 working days from the date of issue reporting.
    c. In case the device is not resolved within 5 days, standby unit should be provided against the non-functional device.
    d. For Software related issue: Remote maintenance/intervention should be available within 1 working day.
    e. For the warranty period, the desired uptime should be 98% of 365 days (24 hour basis). In case the down time exceed 2% limit, the extension of the warranty period will be twice the excess downtime period.
9. Free of cost up gradation of software/ system for the duration of warranty and CMC.
10. Storage and operating conditions:
    a. System should withstand varied and extreme climatic condition in India in terms of storage and operations.
11. The total weight of the complete kit should be less than 30 kg.
12. The charger with charging cables should be provided for device, detector & laptop.

X - Ray Generator Source

1. The unit must be capable of operating with rechargeable battery. X-ray source must have rechargeable battery which should be capable of doing at least 80+ x- rays in one recharge. Any spare batteries needed to achieve this should be supplied along with the system. AC/DC adapter for recharge of battery, Tri-pod stand must be part of the supply.
2. X-ray generator and x-ray tube must be integrated in one and must be micro- processor controlled, high frequency. It should have a digital display of mAs and kV and electronic timer.
    a. The limit of kV Range within - 40kV to 110kV. (wider range in between is better)
    b. The limit of mA range within – 2 mA to 6 mA
    c. Exposure time – 0.04 s (Minimum) to 2.0 s (Maximum).
    d. The limit of mAS Range within – 0.02 to 12 mAS
    e. X-ray Tube: must have a stationary/rotating anode. Focal spot should be 1.3mm or less.
    f. Collimator must be attached to x-ray exposure device with inbuilt LED /LASER light source for positioning. Beam limiting device must have Pb lining.
3. The source should have a digital display to allow different exposure settings and also show critical parameters like battery charge, tube voltage etc.
4. Heat storage capacity of the anode must be at least 6000 to 10,000 HU (preferably higher).
5. It should have automatic /remote exposure control.

Flat Panel X-Ray Detector System (Wired & Wireless)

1. It should be wireless & wired (must be capable of working as wireless & wired) robust flat panel digital detector with instantaneous image transfer as well as storage capabilities. Wireless Flat Panel Detector system (FPD) of Size 14″x17″ or more should be offered.
2. The Scintillator material of the detectors should be made up of Cesium Iodide and sensor with Thin Film Transistor (TFT)/Oxide technology and Amorphous Silicon technology or IGZO technology or better technology.

3. The detector should be protected from dust and liquid. The IP rating should be IP 55 or better.
4. The detectors should be capable of doing out of bucky radiography and Lateral supine Radiography must be possible.
5. The detectors should have a spatial resolution not less than 3 lp /mm or more.
6. Detector array Size: Should be a minimum of 2.3K x 2.8K pixels or higher.
7. Pixel Pitch: 150 microns or less.
8. A/D Conversion - 16 bits.
9. Detector Quantum Efficiency (DQE) - above 70% at 0.5 lp/mm
10. The detector should have MTF at 0.5 lp/mm at 60% or should have MTF 1 lp/mm or at 1 cyc at 60%.
11. The battery must be of latest Lithium-Ion type. Batteries charger should be provided.
12. The detectors should have Automatic Exposure Detection as standard feature.
13. The detector system should not require frequent calibrations on daily start- up.
14. Detector should work on Dual band Antennas (wifi) with minimum 2 antennas and 802.11 n/ac standard ensuring more stable and faster wireless transmission. Detector should work on both wired and wireless communication.
15. Transmission power: 5Gz 18dbm or better in wireless mode.
16. The detector should be capable of placement either in a bucky or directly under the patient if needed and must have load bearing capabilities of at least 200Kg at any single point.
17. The detector must be robust, solid, sealed, water resistant, dust resistant and with appropriate certifications for these parameters.
18. The detector and/or protective case should withstand drop from 1 m. The drop resistance certificate for the quoted model from the manufacturer of the detector or international certification (IEC – International Electrical Commission Certificate) should be provided.

Acquisition System

1. Operating Console/Modality Workstation should have the facility to enter patient demographics such as patient ID, Name, age, etc. Acquisition console software should have different settings for patient type (adult/ paediatric/ obese) & anatomy (anterior, posterior, oblique, lateral).
2. The system should have advanced image-processing algorithm that can show maximum diagnostic details. It should be intelligent to provide best image quality independent of body part.
3. Operating Console/Modality Workstation must be LAPTOP (Wireless), 11 th Gen or newer processor, with min 14" HD display, Window 11 OS, 64GB RAM, 1 TB SDD for CAD alignment,
4. Operating Console/Modality Workstation should be DICOM 3.0 ready and should support minimum the following service classes –
   - Send
   - Print
   - DICOM Modality Work list.
5. Sending images to multiple destinations should be possible. It should be DICOM ready and should be able to send images through PACS system using Bluetooth, Wi-Fi, internet/online, email etc.
6. Previews of images should be available in about 10 second or less.
7. It should offer capability of local image storage.
8. Acquisition software should be compatible with PACS/DICOM servers and DICOM X- ray film printers and provide high-quality jpg / png images, easily transmissible over platforms like WhatsApp / Emails directly from the acquisition station.

9. After image acquisition, the software system should have provision/ function for image adjustment- clip, contrast, brightness, window adjustment, zoom, magnifier, invert, rotate, flip, annotations, measurements, digital collimation, etc.), image view, detail enhancement.

Additional Requirements

1. The system should be supplied with solid (hard) travel case for all components which should be suitable for easy and safe transportation of complete system including source, detector, acquisition console, stands for both source and detector by one person / operator.
2. Specification for hard travel case:
    i. Material should be indestructible resin propylene, light weight, provides high quality toughness, resistance and withstand harsh environmental condition
    ii. Standard quality latching system (such as power claw)
    iii. Reinforced metal padlock holes,
    iv. Wheels made of Polyurethane to withstand rough surfaces
    v. Stackable
    vi. Waterproof resistance and certified to IP 67 rating
    vii. 2-Stage Retractable Handle
    viii. Side mounted spring- loaded handles
    ix. Integrated Lid Stay
    x. Removable Lid
    xi. Top and Bottom Panel Mount
    xii. 100% Stainless Steel Hardware
    xiii. Must have automatic pressure release valve system
    xiv. Multi layered set of customizable inserts made of high-quality polyurethane foam should be provided to store the core and non-core components.
3. Stand for x-ray device: Suitable portable light weight tripod stand with vertical movement range (50-150cm) and rotation of 90 degree around vertical axis.
4. Stand with detector frame: Suitable portable light weight tripod stand with vertical movement range (50-150cm).
5. The safety accessories at least 2 each 'light-weight lead apron' with at least 0.2mm Pb equivalent and thyroid shield should be provided.
6. External charging system: the external power system (power bank) shall be able to charge all electric components (generator, detector and laptop etc.) of the portable digital HH X-ray system with one output AC port. (Specification for power bank-Approx. 85,000- 90,000 mAh, 150-Watt, Lithium-Ion, Input 15V/2A, Output - AC 220V ~ 50HZ) (Unit- 1 number in each system)
7. Radiation hazard stickers and pregnancy warning stickers per device as per AERB guidelines (Pack of 2 each)
8. System should be online and offline AI enabled.
9. System should be NIKSHAY compatible.
10. System should be ICMR validated/approved.