Specification of Digital Radiography System –Version IV

Technical Specification
High powered fully digital radiography system for the Department of Physical Medicine & Rehabilitation, Regional Institute of Medical Sciences, Imphal. The Unit should be completely integrated i.e., integrated X-ray generator, Flat panel Detector and image acquisition control consol with facility for automatic image stitching along with hardware and software.
Please note:
i. Equipment Datasheet submitted should be easily readable without any misprints or fabrication.
ii. Simply giving page number reference of the submitted technical quotation alone will not be considered for evaluation of technical compliance, unless tender specification is also be validated by furnishing, and giving references to the Product Datasheets, Brochures, and or Service/ Operational manuals. It should have following specifications:
1. GENERATOR
a. 800 mA unit with microprocessor controlled high frequency X-ray generator with power output of 80 KW or more
b. The exposure range should be 40-150KV
c. The minimum exposure time should be 1ms or less.
d. There should be provision for solid state automatic exposure control for both table and stand applications.
e. Alt generator parameter controls should be available on acquisition console.
2. X-RAY TUBE
a) Should be ceiling suspended with touch screen display
b) Should have dual focus tube
c) Small focal spot should be 0.6 or less and large focal spot should be 1.25 or less
d) Ceiling suspended tube should have standard motorized movement across i. Vertical axis ii. transverse axis iii. longitudinal axis iv. vertical axis rotation v. and horizontal axis rotation allowing auto positioning basis selection of anatomical program from control workstation
e) Facility size programming should be possible.
f) Anode heat storage capacity should be300 KHU or more(higher kHU would be preferred)

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g) X-Ray tube and collimator section should have automated image shuttering and cropping facility in collimator.
h) System should be completely automated with 5-axis motorized movement of overhead ceiling suspended tube.
i) Overhead tube suspension (3D column stand) should also have a screen with display of important parameters and controls.
j) Horizontal tube rotation should be ± 180 °and vertical tube rotation should be ± 125 ° or more
k) Should have motorized switching of copper filter based on body part selected on the exposure menu to avoid unwanted radiation
l) The required collimation area, taking into account the SID (Source to Image Distance) should be automatically adjusted to the body part selected from the exposure menu.
3. HORIZONTAL BUCKY TABLE
a. Motor driven, adjustable height floating table top of carbon fiber or material having attenuation equivalent to 0.7 mmAl or less with four way movement.
b. Compact bulky table with digital flat panel detector
c. Foot switches for adjusting height, longitudinal/side to side movements, locking.
d. Detector movement should be synchronized with movement of the X-Ray tube.
e. Removable grid for SID of 100cms for horizontal table applications
4. Vertical Bucky (Wall stand)
a) Motorized, counter balanced adjustable height vertical Bucky with digital flat panel detector
b) Should be possible to tilt the Vertical detector system (-20° to +90°)
c) Detector movement should be synchronized with movement of the x-ray tube
d) Removable grid for SID of 180 cms for vertical bucky applications
e) Automatic solid state exposer e control should be available
5. DETECTOR SYSTEM
a) Detector material should have Cesium iodide as scintillator material
b) Two Digital flat panel detector systems with detector integrated into the Bucky table as well as wall stand
c) Minimum size of detector should be 43cms x 43cms or more (with permissible deviation of ± 2 cm on both axes).
d) Image matrix size 2.8 k x 2.8 k pixels or more.
e) Image resolution should be 3 lps/mm or more OR ,equivalent to 150 micron or less
f) Tube assembly movement to be automatically synchronized with both the horizontal and vertical detectors movement
6. OPERATING (ACQUISITION) STATION
a) Should have a high resolution TFT/LCD monitor of minimum 19" size or more (fully flat) with minimum 1024x1024 or more display matrix and antireflective front screen.
b) System should have auto protocol select with Anatomically programmed radiography(APR))facility of preprogrammed exposure technique settings that is organized by position and procedure and set through the control panel of the radiography unit.

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c) System should have standard DICOM Services like MWL, MPPS, Print, and Storage.
d) Should be provided with latest generation computing hardware
7. IMAGE VIEWING, POST-PROCESSING AND REPORTING STATION AND DOCUMENTATION
a) 2MP or better dual head medical grade FDA approved monitor of reputed make need to be supplied
b) Workstation computing hardware should be of latest generations with at least 16GB RAM, Intel i7 Processor, 1 TB HDD and 2MP medical display.
c) Image processing functions like rotate, mirroring, zoom, move, and windowing filter should be possible.
d) There should be facility for measurements.
e) Multi-format printing should be possible with user selectable options.
f) It should be possible to create alphabetical, date wise and exam based, work list
g) Work list should be auto refreshing
8. IMAGE STORAGE AND TRANSMISSION
a) Hard disc storage capacity should be of 4,000 or more images
b) The systems should support storage of images on compact discs and DVD
c) The system should be DICOM 3.0 (or higher version) ready (like send, receive, print, record on CD/DVD, acknowledge etc.) for connectivity to any network, computer/PC etc. in DICOM format.
d) Easy integration and networking should be possible with any other existing/future networking including other modalities, HIS and RIS and PACS. Vendor will connect it to existing/future network without extra cost.
9. ACCESSORIES
a) Dry thermal Imager/laser printer capable of printing radiography images with 500 DPI or more resolution and camera should accept all size films up to 14"x17" size (three film size trays should be active). The system should be able to support both thermal and LASER printers.
b) Suitable UPS of reputed make for the computer with 30 minute backup
c) Lead glass of size 100x 150 cm or more for console room.
d) Vendor to install wireless mike system for calling patients who are waiting outside
e) Five light weight 'zero lead' aprons-with bangers.
f) A lead screen on wheels with two panels.
10. WARRANTY/AFTER SALE SERVICE
a. 3 (three) years comprehensive onsite warranty
11. TURNKEYS -
a. Construction of a suitable room for installation as per the lay out plan and specifications of AERB
b. Installation of the machine and make it functional

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12. ESSENTIAL CERTIFICATION
a. Radiation safety certificate offered model must have a valid type approval or NOC from AERB.
b. Quality certificate:
13. Important instructions to supplier
The supplier must be the Original Equipment Manufacturer of detector and acquisition software and therefore at least two out of three primary components of the quoted model (i.e., generator, detector and tube) should be from the same manufacturer.
Turnkey installation is to be completed within 4(four) months of the placement of order.
Upgradable machine /system is desirable.

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