TECHNICAL SPECIFICATIONS OF BONE MINERAL DENSITOMETRY (DEXA SCAN)

Latest state of art system for Bone Mineral Density determination using Dual Energy X-Ray source with facilities for Spine, Orthopedic Applications for Adults & with Pediatrics applications **Technology should be based on fan x-ray beam geometry with following features:**
1. State of the art model
A.X-ray Source: Constant Potential Source/ Switched Pulse Dual Energy using 100/70kV Peak Energies or more.
B. Detector system should be multi-element solid state array type with direct conversion and counting of high energy and low energy pulses at same time. Minimum 64 detector elements is required.
C. Reconstruction algorithm should be Multiview image reconstruction so that the distance between tissue of interest and detector will not cause any difference in outcome
D.Scanning Method –Fan Beam X-Ray beam
E.Pixel/Sample size: less than 0.5 x0.5mm
F.Image resolution: 1 lp/mm or more
2. Table
A.Easy to access patient table, should be user friendly
B.Patient weight limit: 200 kgs
C.Scan Area for Total Body: 190 cms x 65 cms or more
3. Control Quality
A.Should be automatic with internal phantom or self calibrating with anthropomorphic Phantom, or an equivalent automatic calibrating system.
B.Should not require Operator/Manual Calibration.
C. Precision accuracy should within 1%.
4. Clinical Application –Should be applicable for whole body parts both for adult as well as for pediatric use.
A. Whole body Analysis- Total Body Composition (with fat/lean mass assessment)
B. Supine BMD for AP
C. Proximal Femur should separately include total femur, femoral neck, intertrochantic, trochantic and wards triangles)
D. Should automatically check dual femur and forearm
E. Hip: Advance Hip assessment with Hip Axis Length and Cross sectional
F. Hip Analysis with ortho implants should be possible and software should support
G. Scoliotic Spine Analysis- system should be designed in such a way that X Ray will chase bone so that parts of scoliotic spine is not missed
H. Pediatric Spine, Hip and Whole Body Analysis with reference data
I. Infant total body.
J. Visceral Fat Estimation
5. Scan Time (at the best precision)
A. Whole Body – Max 7 min.
B. Lumbar Spine – Max 30 sec.
C. Prox. Femur – Max 30 sec.
D. Dual Femur – Max 60 sec.
E. Fore Arm – Max 30 sec.
6. Results / Reporting Tools/ Software

A. Should be DICOM compatible with connectivity for remote interpretation & e-reporting (text report and images).
B. Should be available with BMD, BMC, T-Score, Z- Score, reference, data, trend report, WHO Diagnostic classification of fracture risk etc.
C. Software: Context sensitivity Help Software for reference; Morphology Assessment (Area, Length and Angle); graphical Display for proper patient positioning; Reporting software with fracture risk indication; Computer aided fracture risk indication; Standardized BMD reporting; Extended Spine Reporting; Extended proximal femur with rate of changing reporting; Software for comparing scan from different company. Vertebral assessment, Orthopedic Knee application, Hip Axis length Atypical femur fracture application with measurement of beaking, Multi-user DB with remote viewing and analysis, Sarcopenia calculator, integrating a specific definition that is specific to Indian population, trabecular bone scoring Software
7. Computer Work Station
A. State of the Art Computer System with standard hardware
B. Operating System: Latest Windows based
C. Processor: Intel CORE i7 or higher
D. RAM 8 GB or more
E. DICOM
F. Hard drive ITB SSD
G. External hard Drive- 2 TB SSD
H. Network interface card
I. Monitor – 21 inches or more. HDMI compatible
J. DVD Writer: DVD/CD R/W drive (500 CD & 500 DVD should be supplied with the unit)
K. Printer: High Density Laser Color Printer along with 8 sets of black cartridges and 8 sets of color cartridges and the required Stationary.
L. Software: Licensed operating system installation CD along with Recovery CD
8. Accessory Standard Voltage stabilizer/UPS with 30 minutes back up is to be provided by the company.
9. Turn key work
A.Institute will provide room of appropriate size (of 16 x16 feet) with required power supply.
B. Rest of work, including room changing, renovation, flooring, ceiling, furniture, air conditioning, lead lining etc. will have to be done by the bidder.
10. Training
a).Two doctors from the department and two technicians to be trained for 2 weeks on site.
11. Certification & Installation
A. The system should be BIS /US FDA/ CE/ ICMED Approved.
B. The quoted model should have AERB type approval.
C. The principal manufacturer to undertaking that they will maintain service the equipment in case Indian Agent / supplier fails to provide.

12. Warranty/ CMC/ Others
A. Comprehensive warranty for 5year for the complete systems including x-ray tube. Quote comprehensive maintenance contract (CAMC) for complete systems including x-ray tube for additional 5years after expiry of warranty of 5 years.
B. Breakdown complaint must be attended with in the 48 hours.
C. Company should have installed the machine in at least three government/ Public sector Institution in last 5 years