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| **CT Scan 256 Slice** | SN PARAMETER DETAILED SPECIFICATION   1. GANTRY    1. System should be capable of Acquiring / Generating **256-slices** per gantry rotation in real time.    2. Gantry bore / aperture to be at least **72cm** or more.    3. Minimum gantry rotation time to be at least **0.25seconds** or better, for 256-slices per 360- degree rotation, for all applications. All the firms should quote their latest model scanner.    4. System should be able to acquire helical/ sequential scan with the gantry tilted from the vertical.    5. Gantry tilt range must be **± 30** degree.    6. Maximum scan field of view to be at least 50cm for Paeds & Children\    7. Extended Field of View: 50cm or more.   Minimum slice thickness of at least **0.4mm**.  1.9. Dual Control (including tilt,) of gantry and table from the gantry-housing and console.   1. TUBE 2.1 Heat storage capacity of at least **30MHU** or better without Iterative Dosage.   2.2 Generator output of up to **800mA** or more for all applications. with 3 focal spot sizes   1. GENERATOR 3.1 High frequency power generator with minimum power of at least **100kW**   or more with **60KV to 140KV**   * 1. should be capable of variable kV setting in steps   2. should have ability to vary the power (mAs) automatically in steps.   3. Real-time dose reduction hardware / software and with ECG modulation   4. Able to calculate patient dose in millisievert preferably before image acquisition (CTDI) Iterative dose reduction must be offered.   5. Low contrast detectability (LCD) is the most important specifications of CT Scanner. The CT Scan must be capable to show LCD of 2mm at 3HU (0.3%) contrast difference with radiation dosage of not more than 10mGy.   6. Scan Length of at least 1.75meters or more of helical or axial scan in a single acquisition. 3.8Maximum Scan Time 100sec. or more for handling heavy patient load.  1. DETECTORS 4.1 Solid state crystal ceramic detectors with conversion efficiency (X-Ray to signal strength) of nearly 100% latest technology.    1. Isotropic voxel size of 0.33mm or better, in all three axis    2. Minimum 128 physical detectors and detector electronics capable of providing 256 slices per gantry rotation or more.    3. Detectors width 80mm or more per gantry rotation. 2. COUCH 5.1 Dual motorized control (from console and gantry) of table movements in horizontal and vertical axis.    1. Maximum weight allowed on the couch up to 200kg or more 5.3Single acquisition scan range of at least 1.75meter   5.4Scan with at least 0.25mm accuracy / reproducibility on a 200kg patient.   1. CONSOLE COMPUTER 6.1 System architecture and operating system must be based on latest technology (64 bit RISC or Dual Xenon Processor PC) original.    1. Multitasking and parallel processing CPU system.    2. At least 16GB RAM or more    3. Hard disc capacity for image storage of at least 900GB or more.   Capable of storing at least 3000 raw data files / rotations or 700 GB raw data / 450000 images in 512 x 512 format   * 1. Reconstruction of at least **60** images per seconds or better at 512 x 512 matrix with iterative dose reduction.   2. Image area display matrix dimensions (1024 x 1024 )   3. Console color monitor, TFT type of at least 19inches, medical grade with maximum viewing angle   4. CD / EOD and DVD writer   5. CONSOLE SOFT WARE   All the latest cardio-vascular and whole-body software should be supplied as standard which is available at the time of shipment.  USER INTERFACE SOFTWARE   * + 1. True isotropic volume acquisition     2. Prospective and retrospective ECG gated acquisition     3. Variable Delay algorithm like fixed percent delay ( FPD) and fixed offset delay ( FOD ) or better   , for selection of period of least motion in cardiac cycle ( temporal resolution of 40 milli second or better; less will be preferred)   * + 1. Automated contrast media bolus tracking software     2. 3D RECONSTRUCTION DISPPLAY ORIGINAL COMPANY SOFTWARE:        1. Maximum and minimum intensity projections        2. Multiplanar and curved planer reconstruction        3. 3D shaded surface display        4. 3D volume rendering software        5. 3D virtual endoscopy, colonoscopy and bronchoscopy        6. 3D cone beam correction.     3. CT angiography     4. Brain perfusion analysis     5. Dental CT     6. Image reconstruction     7. Fat Index View to calculate body fat area based on a single slice of non-contrast-enhanced CT data. Body fat area to be calculated including total fat, visceral fat and subcutaneous fat area. BMI should also be calculated with Reporting function and color display.     8. Lung Nodule Detection and analysis     9. Cardiac Function Analysis 6.10.13  1. Artifact reduction algorithm 2. Automatic control of tube current over high and low attenuation areas for patient dose reduction software for low dose to patient original / certified. 3. ITERATIVE DOSE REDUCTION SOFTWARE SHOULD BE APPLICABLE FOR WHOLE BODY ORGANS.    * 1. MANDATORY OPTION to be quoted.   SYSTEM MUST HAVE CAPABILITY OF DUAL ENERGY SCANNING   1. WORK-STATION   FDA/CE approved, independent, multimodality, fully functional. All companies will supply the workstations from the same manufacturer of CT Scanner (third party solution is not acceptable) THREE INDEPENDENT STAND-ALONE WORKSTATIONS ARE REQUIRED, or **Server with 3**  **active users**   * 1. High speed link to operator console on DICOM network   2. System architecture and operating system  1. Dual processor Xeon 2. 2.66 GHz or more speed 3. 512 cache or more 4. Graphic cord and network cord    1. Should have one high resolution TFT monitor of 18 inch or more    2. DVD RW (super-drive will be preferred)    3. DICOM-3 viewer with universal PC display capability (licensed )    4. Heavy duty Laser black and white printer A4 /letter size 2400 dpi or higher, two paper trays for A4/ letter size media, (HP, Lexmark, Xerox, CANNON) network-ready    5. WORKSTATION SOFTWARE       1. 3D RECONSTRUCTION DISPLAY          1. Maximum and minimum intensity projections          2. Multi-planer and curved planer reconstruction          3. 3D shaded surface display          4. 3D volume rendering software          5. 3D virtual endoscopy, colonoscopy and bronchoscopy       2. CT Angiography   7.7. 3 Advanced coronary vessels analysis  7.7.4. Calcium scoring with ECG gating and prospective / retrospective reconstruction   * + 1. Cardiac function analysis –     2. Advanced peripheral /general vessels analysis     3. Lung nodule detection and analysis     4. Brain perfusion analysis  1. DICOM DICOM 3 ready (multi-vendor and multimodality compatible for send, receive, achieve, retrieve and print, on main console and workstations). 2. QUALITY and SAFETY STANDARD   MDD ( CE ), FDA (510K) and MHLW (**one among three is mandatory**)  10 Power requirement Three phase with line voltage of 380-440V, 50Hz.   1. ACCESSORIES 12.1 Programmable, dual head power injector with flow/volume and temperature control. Mounted on mobile base, with 500 syringes of 150 ml capacity and connecting tubes (Medrad-Bayer, Angiomat, Nemoto)    1. DICOM 3 ready dry laser camera / imager, Multi-size upto 14 x17 in. (Agfa, Fuji, Kodak, Konica   ) for black and white printing on films including 5000 films.   * 1. On-line sine wave UPS for whole CT suite, with a minimum back-up time of 10 minute on full load.   2. Lead glass for control room (5 x 3 feet ), 0.5 mm lead equivalent.   3. Standard set of Phantoms for calibration of CT   4. Pediatric scanning package - software and hardware with small FOV as low as 200mm or less.   5. Dedicated Cardiac Monitor for synchronize with cardiac scan.   6. TABLE ACCESSORIES – Table pads, arms rest, patient restraint kit, IV pole, infant cradle, flat head holder.  1. TRAINING TWO visits (of one week each) of application specialist foreign trained trainer are mandatory for training of doctors and technicians – one visit will be immediately after complete installation of the system and second will follow by 03 months. 2. WARRANTY: COMPREHENSIVE WARRANTY OF THREE YEARS WITH ALL PARTS INCLUDING CT TUBE AND DETECTOR TO BE OFFERED BY THE MANUFACTURER (LOCAL FIRM’S WARRANTY WILL NOT BE ACCEPTED)   NOTE The firms must quote all other advanced available applications / packages as optional (which will not form the basis of acceptance or rejection) |  |
| **16 Slice CT scanner Trauma Center** | Description: SPECIFICATIONS OF WHOLE BODY 16 SLICE CT SCANNER.  Department: Radiology  1. GANTRY   * System should be capable of acquiring 16 slices per gantry rotation or more for all applications in helical and axial mode along with **32 detector rows or more** (One slice means data acquired from 360 degree tube rotation). * Gantry bore to be at least **72 cm** or more. * Minimum gantry rotation time to be at least **0.5** sec or less for 16 slices per 360 degree rotation for all applications. * Maximum scan field of view to be at least 50 cm or better * Minimum slice thickness 0**.65** mm or less in axial and helical mode. * Bilateral control of gantry and table from the gantry housing and operator console.   2. X-RAY TUBE.   * Heat storage capacity of at least **5 MHU** or more. * Anode heat dissipation of maximum 800 kHU/min or more. * Generator output of at least **400 mA** or more.   3. GENERATOR.   * High frequency power generator with minimum power of at least 50 kW or more. * KV Range: 80 kV to **140 kV** or better * Should have ability to vary the power (mAs) automatically in steps. * Real time dose reduction hardware   4. COUCH.   * Dual motorized control (from console & gantry) of table movements in horizontal and vertical axis. * Maximum weight allowed on the couch up to **200 kg** or more. * Single acquisitions scan range of at least **1.7 m** or more.   5. CONSOLE COMPUTER.   * System architecture and operating system must be based on latest technology (Intel Xeon 3.3 GHz) * Multi-tasking and parallel processing CPU system. * At least **8GB** RAM or more. * Hard disk capacity for image storage of at least 75,000 (uncompressed) images or more. * Reconstruction of at least 13 images per second or better * Image area display matrix (512 x 512) * Console color monitor (02 Nos). TFT/LCD type of at least 21 inches or more, medical grade with 1920 x 1080 resolutions * DVD / CDR   6. Console software.   * True isotropic volume acquisition * Automated contrast media bolus tracking software. * 3-D reconstruction display; * Maximum and Minimum intensity projections. * Multi planer and curved planer reconstruction. * 3-D Shaded surface display (SSD) * 3D volume rendering software. * Automated real-time tube current adjustment for best diagnostic image quality at lowest possible dose, independent of patient size and anatomy * Artifacts Reduction Algorithm * Dose Control Parameters (online/continuous) * Dose Display CTDI, DLP, Dose efficiency etc. * Iterative reconstruction technique with dedicated dose reduction software and hardware * Pediatric scanning package including software and infant holder / immobilizer. Inbuilt feature of dose reduction for pediatric scanning * Automated 3D bone removal functionality   7. CT POST PROCESSING Multi-Modality WORKSTATIONS   * Manufacturer’s original Multimodality 1 Thin Client Solution with Licensed software and having 2 concurrent user licenses with necessary hardware for CT post processing. * FDA/CE Approved.   Offered post processing workstation should be from same OEM.   * Server Hardware * Min 19-inch LCD monitor for Administration * Min 08 -16 GB (extendable) * Min 1TB Image database disk. * DVD + RW for image storage & for software loading. * Computer system of Client WS: * Min 21-inch 2 MP or more medical grade monitor. * Quad Core XEON processor 2.4 GHz processors or better * Min 6 GB RAM * Min 250 GB Image database disk. * DVD + RW for image storage & for software loading. * Online UPS for workstations 3 KVA with dry batteries 10 min back up time.   8. Workstation Software.   * Software up gradation of all existing applications during the warranty period * Following software should be provided at all workstations. * 3-D reconstruction display; * Maximum and Minimum intensity projections. * Multi planer and curved planer reconstruction. * 3-D shaded surface display (SSD) * 3D volume rendering software. * 3-D Virtual Endoscopy * Advance peripheral / general vessels analysis.   9. DICOM 3   * DICOM 3 ready (multi-vendor and multimodality compatible) for Send, Receive, Archive, Retrieve and Print on main console and workstation.   10. QUALITY & SAFETY STANDARDS.   * MMD (CE) compliance or FDA 510 K approval.   11. POWER REQUIREMENTS.   * Three Phase with line voltage of 220 V & 50 Hz.   12. ACCESSORIES.   * Programmable Injector with flow / volume and temperature control. Mounted on mobile base with 500 syringes of 150 ml capacity and connecting tubes (Medrad, Angiomat, Nemoto, Medtron.)   DICOM 3 Ready Dry Laser Camera / Imager multi size up to 14" x 17" with 3 drawers for different  size of films (care stream, Agfa, Fuji, Konica) for black/white printing on film including 1000 films.   * Film viewers (x02) for images up to 14 x 17 with variable light control and shutter * On line sine wave UPS for whole C.T. Scanner with a minimum back up of full load sine wave UPS for whole system, back up time 10 minutes. * Diesel power Generator 100 KVA including ATS, sound proof canopy, foundation pad, earthling and cabling (Perkins, Cummins, caterpillar) * Protection devices (lead aprons (x6) with hangers, lead gloves (x6) pairs, all 0.5mm Pb or eq. * Lead glass 5x3 ft. lead 1.5 mm pbeq * Standard set of Phantoms for calibration of CT   13. WARRANTY.  The Comprehensive Warranty for the machine will be 03 years including all kind of parts, labor and CT tube from the date of installation/acceptance. Spare parts availability must be from the manufacturer for 10 years |  |