**Tender Specification for 64 slice Multi Detector CT scanner**

**Minimum Specifications**

The equipment should be continuous rotating Low Voltage Slip ring type with Volume Scan function and should be able to perform 64 slice spiral data acquisition scanning of whole body including head, Coronary, Thorax, spine, abdomen and capable of producing high resolution images.

The system should be supplied with Acquisition workstation and Post-processing workstation

The system should conform to the following essential specification:-

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<th>Specification</th>
<th>Details</th>
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<tr>
<td><strong>Gantry</strong>:</td>
<td>The gantry aperture should be 70 cm or more and the tilt should be minimum +/-30 degrees. Gantry tilting should be possible remotely from the console. The Gantry should have in-built display of ECG and X-ray parameters.</td>
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<td><strong>Scan time</strong>:</td>
<td>The minimum time should be less than 0.5 sec for FULL scan (360 deg.) with a choice for selection of different scan times. It should be possible to use the minimum scan time for all applications including Coronary cardiac CT and routine Adult patient scans.</td>
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<td><strong>Slice per rotation</strong>:</td>
<td>The system should produce 64 slices per 360 degree rotation</td>
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<td><strong>Image Reconstruction</strong>:</td>
<td>Real time image display in 512 x 512 matrix during spiral acquisition at 20 images/sec recon time.</td>
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<td><strong>Slice Thickness</strong>:</td>
<td>There should be various slice, thickness available with minimum being 0.6mm.</td>
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<td><strong>Field of View</strong>:</td>
<td>The maximum FOV should be 50 cm or more</td>
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<td><strong>High Contrast Resolution</strong>:</td>
<td>Spatial resolution should be 17lp/cm or more at 0% MTF.</td>
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<td><strong>Low Contrast resolution</strong>:</td>
<td>Low contrast resolution should be minimum 2.0 mm (0.5%) or less.</td>
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<td><strong>Image Quality</strong>:</td>
<td>Isotopic resolution of 0.5mm or better at any pitch or scan speed and at all positions</td>
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<td><strong>Temporal resolution</strong>:</td>
<td>should be 200 milliseconds or less for single sector / segment reconstruction</td>
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<td><strong>Detectors</strong>:</td>
<td>There should be atleast 64 rows of detector of Solid State Ceramic material. Indicate possibility to upgrade to 128 slices (preferred)</td>
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<td><strong>Patient Table</strong>:</td>
<td>The table should have a metal free scan range of 160 cm or more. Table movement control should be remotely possible from console.</td>
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<td><strong>X Ray Tube</strong>:</td>
<td>The X ray tube have a anode heat storage capacity of minimum 6.0 MHU (equivalent 15MHU) or more. Give details like Anode Heat Storage capacity, Heat Dissipation or Cooling rate, Focal spot size, mA and KV ratings.</td>
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**X Ray Generator:** The generator should be high frequency type. 50KW or more and should be equivalent to 100KW with Iterative Recon.

**Iterative Reconstruction System:** System should have latest Iterative Reconstruction system to reduce dose up to 60% or more

**Computer System of Acquisition workstation:** The computer should be a multi CPU Workstation type with complete multitasking capability. The system should be supplied with 19" TFT monitor. The system should allow image processing, 3D reconstruction, image manipulation, storing/retrieving images from disk parallel with scanning, the system should be DICOM 3.0 compatible, should have in-built image storage of 200000 images, CD and DVD for additional image storage facility.

**Computer System of Post-processing workstation:** The computer should be a multi CPU Workstation type with complete multitasking capability. The system should be supplied with 19" TFT monitor. The system should allow image processing, 3D reconstruction, image manipulation, storing/retrieving images from disk parallel with scanning, the system should be DICOM 3.0 compatible, should have in-built image storage of 200000 images, CD and DVD for additional image storage facility.

**Reconstruction Filter:** The system should provide high resolution filters for different body region. Please specify the no of filters provided for each body part.

**Iterative Dose Reduction:** Software to reduce dose by raw data / model based iterative reconstruction. Minimum 15 images/sec. Please quote the latest technique available

**Software capabilities:** The system should be supplied with the following software as standard components.

- **Real time MPR, MPR thin & Thick with view prospective of Sagital, Coronal and Axial views**

- **3D Shaded Surface Display** of surface with different density values like soft tissues, bones and contrast enhanced vessels.

- **Volume calculations**

- **Volume Rendered technique:** Advanced 3D application package for the optimal display and differentiation of different organs through independent control of color, opacity, and shading in up to 4 tissue classes

- **CT Angiography:** MIP, MinIP, Thin MIP, Evaluation of spiral images and display of vessels, vascular anomalies, aneurysms, plaques and stenosis.
**Virtual Endoscopy** software enabling visualization of vessels, airways, and the intestines

**Complete Coronary cardiac evaluation (optional)**
- with ECG-synchronized true isotropic volume acquisition using prospective ECG triggered or retrospective ECG-gating mode.
- Basis for 3D cardiac scanning and reconstruction, e.g. CT-Angiography of the coronary and thoracic vessels or Calcium Scoring
- Adaptive ECG-synchronized dose modulation (pulsing) allowing for optimal dose savings
- Fully automated cardiac evaluation
- Automatic quantification of stenoses
- One-click heart isolation
- One-click coronary segmentation
- Full evaluation of left-ventricular function

**Segmentation**: Automatic segmentation of lung, liver, lymph nodes and general lesions.

**Auto Bone removal facility**

**Body perfusion facility**

**Liver** segmentation display software in different colours, volumetry and virtual surgical plane identification for liver transplant surgery.

**Dual Energy**: All new Dual Energy Applications such as Gout, Calculi Characterization and Metal artifact reduction should be quoted as standard (Optional)

**Standard Accessories**: The system should be supplied with the following accessories as standard.
- **Pressure Injector**: Dual head pressure injector of reputed make
- **Lead Glass** - Minimum size: 4’x2’
- Uninterrupted power supply (UPS) for the image processing unit with 15 minutes battery back-up
- Further to this the system should include all the necessary accessories and consumables supplied as standard with the system.
- **Camera**: DICOM camera with 500 DPI resolution

**Warranty**: The system should be warranty for minimum 1 year from installation including spares and X-Ray Tube.

**General Terms and Conditions:-**
- The bidder should have a track record of supplying large number of CT scanner in India.
- The bidder should have a track record of supplying and maintain CT scanners in Government Institution Hospital in the country.
- Company should provide written guarantee for maintenance, service, spare parts for at least 10 years.
- Company should have well equipped service center in Kolkata.
- Company should give in writing to provide services or break down calls within 24 hrs.
- Company should quote year wise rates of comprehensive service contract for 8 years after the warranty period is over.
- Past experience of service and maintenance will be taken into consideration.