CLIENT NAME:

TAPAN MUKESHBHAI PATEL MEMORIAL HOSPITAL , MEDICAL COLLEGE AND RESEARCH CENTER, SHIRPUR

RADIOLOGY TENDER

TENDER DOCUMENT:

SVKM/TMPMH/CT /001

SECTION 2 – SPECIFICATIONS

1. Computerized tomography (CT) 128 slice (64 rows of detector)

Sl. N.	Specifications
	The Model offered should be the latest High end model under current production, should be Slip Ring Technology. The detector should be of latest technology having nano panel equivalent of Elite/Stellar/Clarity detector technology. Refurbished-Gold Seal Units will not be accepted. The Offer should meet the Specifications as follows
1	**Manufacturer :**
2	**Type & Model:**
3.	**Country of Origin :**
	The system should be latest state of the art, independent 64 or more rows of detectors with acquisition of at least 128-160 slices per rotation capable of integrating with any PACS/HIS system. The system should be DICOM - ready with true isotropic volume acquisition and sub millimeter resolution. The model quoted should be, AERB Type approved and US FDA / European CE certified. The essential requirements of the system are as follows:-
	a) Gantry:
	- Aperture: 78 cms or more.
	- FOV: 50 cms or more
	- 3-D laser lights for positioning.
	b) X-Ray Generator:
	- High Frequency type.
	- Power output: 80 kW or higher
	- mA Range: 20-600 mA (With incremental steps of 10 mA)
	- KV Range: 90-130 or more
	c) X-Ray Tube:
	- Tube Voltage: 90-130 kV or more
	- Anode Heat Storage Capacity of at least 8 MHU or direct cooling tube with
	- Peak Heat dissipation rate of Anode should be at least 1600 Khu/min
	d) Patient Table:
	- Load carrying capacity at least of 180 Kg with positional accuracy of 1 mm or less
	- Metal free scan-able range of 150 cm or more
	- Floating table top with foot pedal/hand control for positioning.
	e) Spiral Acquisition:
	- Scan Time should be 0.4 sec or less for full 360 degree rotation.
	- Minimum slice thickness should be 0.625 mm or less.
	- Pitch Factor (volume pitch): freely selectable in auto mode and also manually variable between 0.5 to 1.5 or more. Specify all possible pitch selections.
	- Bolus Triggered or bolus chase spiral acquisition should be available.

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	- Real time x-ray dose reduction which combines both Z axis and angular tube current modulation to adjust the dose to the size and shape of individual.
	f) Image Resolution:
	1. High contrast resolution should be at least 15 lp/cm for axial and spiral scan at 0% MTF with full FOV.
	2. Low contrast resolution – 5mm or less at 3.0 HU using 20 cm CATPHAN phantom on 10 mm slice thickness.
	g) Data Acquisition System:
	- Detector- Capable of acquiring 128 slices per 360 degree of rotation.
	- At least 64 rows of independent detectors are required with Z-axis coverage of 38 mm or more.
	- Solid state or rare earth detectors of latest technology free from repeated calibration.
	h) Image Reconstruction:
	- High speed real time reconstruction with display matrix of 1024x1024 or more.
	- Reconstructed slice thickness should be sub-millimeter to 7mm freely selectable.
	- Latest iterative reconstruction technique to reduce noise and reduce radiation dose should be quoted as standard. The image reconstruction rate should be atleast 16 images/sec with this reconstruction technique.
	i) Operator Console:
	- High resolution medical grade LCD color monitors of 19‖ or more.
	- Should perform Registration, scheduling, protocol selection, Volume rendering, volume measurements, Multi-planar Reconstruction, and standard evaluation application and all available post processing functions without the help of the satellite workstation.
	- Raw Data storage with at least 500 GB Hard disc having image storing capacity of 2,00,000 or more in 512x512 format.
	- Auto-voice capability with custom designed key board and mouse.
	- Archiving options: CD-R, DVD, should be available. 5000 rewritable DVDs should be provided.
	j) Workstation
	1. It should be a high speed (minimum post-processing frame rate of 16 frames/sec) CPU with a speed of 3.0 GHz or better and with three clients hardware having independent Hard disc storage capacity of 1TB or more, with 19 inches or more high resolution 2MP medical grade colour LCD monitors capable of simultaneously viewing and performing all post processing functions and filming independently without the help of main console.
	2. Two way data transfer between the operator console & the satellite workstation should be automatic and standard.
	3. Post Processing Soft-wares
	i) Perfusion CT for whole brain

Sl. N.	Specifications
	ii) CT Angio, VRT, MIP, MPR, 3-D Shaded Surface display, Image Fusion, Vessel segmentation, luminal view.
	iii)Virtual Endoscopy with facility for virtual dissection and computer aided detection of polyps.
	iv) Advanced cardiac package including Coronary Artery Imaging, Calcium Scoring, Myocardial Viability software, Cardiac functional analysis and advanced Vessel analysis including stenosis assessment. Facility for prospective and retrospective ECG gating, facility for automatic selection of rotation speed according to heart beat and step and shoot for low dose acquisition should be available.
	v) Automatic bone Removal facility.
	vi) Dental CT.
	(vii) Lung nodule evaluation software. CAD for Lung nodule evaluation software should be quoted as optional.
	(viii) Auto Liver segmentation display software in different colors, volumetry and virtual surgical plane identification for a comprehensive analysis and quantification of clinical information.
	5. Interactive & Automatic Cine display should be available.
	6. Image Evaluation Tools:
	i) Parallel evaluation of multiple ROI in circle, irregular and Polygonal forms,
	ii)Statistical Evaluation for area/ volume, S.D, Mean/Max and Histograms.
	iii) Distance & angle measurement, freely selectable, positioning of co- ordinate system, grid and image annotation.
	k) Patient communication system:
	1. An integrated intercom and Automated Patient Instruction System (API) should be provided.
	2. Two closed circuit TV for patient monitoring.
	i) System Configuration Accessories, spares and consumables:
	- Lead Glass 100 cm x 150 cm of 2 mm Lead equivalence as per the requirement of the equipment. As per AERB recommendations
	- Online UPS of suitable rating should be supplied for the complete system including Gantry, computer system, with at least 30 minutes back up.
	- Dual Head Pressure Injector with 200 syringes of 200 ml.
	- Software for Remote Diagnostics Service should be provided.
	n) AERB site approval: Vendors shall be responsible for getting AERB Site Plan approval prior to installation.
	It is the responsibility of the bidders to visit the consignee site for assessing site requirements and readiness.
	The technical specifications given above are the minimum requirements. Higher specification will also be considered at the time of technical evaluation.