ALL INDIA INSTITUTE OF MEDICAL SCIENCES,

STORE SECTION (DO), 1ST FLOOR, ANIMAL HOUSE,

ANSARI NAGAR, NEW DELHI-110 029, INDIA

TENDERENQUIRY DOCUMENT

(Two Bid System for Machinery & Equipments)

Advertised Tender Enquiry No.: XX-155/SO(DO)/N.M./24-25/M&E

Brief Description of Goods   : Purchase of Digital PET/CT on Buy back basis - 01 Unit.

ALL INDIA INSTITUTE OF MEDICAL SCIENCES
ANSARI NAGAR, NEW DELHI-110 029
TENDERS ENQUIRY DOCUMENTS (TED)

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On behalf of Director, AIIMS, Ansari Nagar, New Delhi-110 029, online bids are invited in two bid system (Techno-Commercial Bid and Financial Bid) from reputed, eligible and qualified firms/manufacturer for supply of following Goods:

S. No.	Brief Description of Goods	Quantity	Amount of Bid Security/EMD
1.	Purchase of Digital PET/CT on Buy back basis	01 unit	INR Rs.56,00,000/-

CRITICAL DATE SHEET

Published Date & Time	02-12-2024 at 4.00 pm
Bid Document Download/Sale Start Date	02-12-2024 at 4.00 pm
Seek Clarification Start Date	02-12-2024 at 4.00 pm
Seek Clarification End Date	09-12-2024 at 4.00 pm
Pre Bid Meeting	14-12-2024 at 10.30 am
Pre Bid Meeting Place & Address	Department of Nuclear Medicine, Room No. 54, Ground Floor, Old RAK OPD, Ansari Nagar, AIIMS New Delhi-110029.
Bid Submission Start Date & Time	24-12-2024 at 4.00 pm
Bid Submission End Date & Time	07-01-2025 (Tuesday) at 03.00 pm
Bid Opening Date & Time	08-01-2025 (Wednesday) at 03.00 pm

Department - Nuclear Medicine			
Technical specifications of "DIGITAL PET/CT SCANNER-128 slice" Qty. 1 No. on a buy back basis of old PET/CT (Siemens)			
Please quote the model which includes latest state of the art equipment and meets the basic minimum specifications. The quoted model should be latest introduced with end of life not before 10 years from the date of installation.			

Sr. No.	Description of Item	Compliance		Remarks
		Yes	No	
	Model Name:			
	Make:			
	Year of Introduction :			
	Probable end of support :			
1.	COMPLIANCE TO MAJOR SCOPE OF WORK			
	Major Scope of Work is defined below: To supply, delivery, Installation, Testing & Commissioning of a SiPM based Digital positron emission tomography/Computed Tomography (PET/CT) System with Pest control measures			
2	INSTALLATION EXPERIENCE OF PETCT SYSTEMS			
	Bidder shall provide the list on Number of installation bases across the globe and install base in ASEAN countries. Minimum 2 installations must be available in India/Asia at time of quoting.			
3	PROJECT MANAGEMENT			
	Bidder shall provide project support for end to end work.			
	Bidder shall provide the related new floor plan of PETCT examination and control room and the proposed PET/CT System.			
	Bidder shall specify the room temperature and humidity for the examination room and equipment's Technical room. Please specifiy chiller requirememt and must include as standard for gantry cooling.			
4	SOFTWARE + IT/ COMPONENTS + UPS+DATABASE INSTALLATION, LICENSE IMPLEMENTATION			
	The software shall be updated, maintained during service contract period.			
5	EQUIPMENT RELATED HARDWARE AND SOFTWARE AND SAFETY FEATURES			
	Application			
	Latest high end PETCT scanner offering at least 128 CT slices per rotation capable of a whole body PET/CT with automatic and accurate image fusion.			
	General Features			
	The system shall have an integrated internal laser patient positioning light at coronal, sagital and axial positions for both PET and CT patient.			
	This system provide both functional and anatomical information with high image quality with CT based attenuation correction			
	The PET system shall have capability to produce images using all commercially available radiopharmaceutical agents with high throughput			
	The system shall perform the fast acquisition and reconstruction of high quality images with minimum radiation dose to the patients and operators.			

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The PET imaging system consists of the multi-detector ring with 3D acquisition and reconstruction with High Definition		47	
The system shall be able to provide the extreme performance (fast reconstruction with high quality images including 3D image reconstruction) even during heavy workload and high usage of the memory.			
The system shall be able to perform simultaneous image reconstruction during image acquisition and be optimised for dedicated brain and cardiac reconstruction			
The system shall have motion management tools to encounter clinical motion challenges of PET and CT fusion.			
The system shall be able to perform wide range of advanced oncological, brain and cardiac applications, with basic tool enabling 3D metabolic volume measurements and accurate anatomical localization of physiologic and pathological processes.			
The system shall be able to display multi-modality images i.e. MRI, other PET, and other CT.			
The system shall be capable of functioning as CT independently as well.			
The system shall be able to perform daily QA to ensure the highest quality of PET scans and minimise exposure to personnel			
Essential Compenents			
PET Subsystem			
CT Subsystem			
X-ray Subsystem			
Patient Table System			
Operator Console with Image Display & Management			
PET Reconstruction Algorithms/including high quality brain reconstruction			
CT advanced Reconstruction Algorithms			
Calibration source- X 5 year with disposal			
Motion Management			
Independent Review & Analysis Workstations atleast 10 with UPS			
Technical Specifications			
PET Subsystem			
Crystal material: Non-hygroscopic scintillator material for detecting 511KeV positrons in co-incidence like LSO/LySO			
Crystal size (3.95 mm x 5.3 mm x 25 mm) or (4 mm x 4 mm x 20 mm) or similars			
Crystal thickness : at least 20mm or more.			
Material made from silicon photomultiplier (SiPM) based detector			
Detector ring diameter : 740mm or larger			
Pet Detector Parameters			
Coincidence window < 5ns			
Transaxial FOV : 70cm or more			
Axial FOV : 25cm or more, onsite upgradable, scalable platform to higher axial FOV with addition of PET rings.			
Axial sampling interval: < 3.5mm			
PET PERFORMANCE			
All specification must comply with latest NEMA standards publication performance Measurements, without altering parameters. QC software to measure these parameters must be available in the system.			
Trans axial resolution (NEMA 2012)			
FWHM @ 1cm < 2.5mm			
FWHM @ 10cm < 2.5mm			

Axial resolution (NEMA 2012)			
FWHM @ 1cm < 3.5mm			
FWHM @ 10cm < 3.5mm			
NEMA sensitivity at least >16 cps/kBq or better			
Effective senstivity > 50 cps/kBq			
Timing Resolution: Time of flight			
Peak NECR (NEMA) of $\geq$200 kcps, specify activity for peak NECR.			
The system shall be equipped with specialized functionality and protocols for the following clinical applications			
Full body imaging. Provide details			
Advanced cardiology imaging for PET and CT with integrated ECG triggering device			
Advanced oncology imaging software with minimum of four/multiple time points comparison			
Advanced Neuro imaging software with FDG normals and provide other normal database available for AMYLOID, TAU and FUSION Integration software			
COMPLETE MIM SOFTWARE/ Advanced PET analysis software with PERCIST, TLG and segmentation tools.			
4D CT and 4D PETCT for respiratory gating must be provided, softwares needed for same to be included in configuration as standard, while the 4D Gating hardware to be quoted separately as optional.			
CT Subsystem			
Gantry System			
The system shall have an integrated internal laser patient positioning light at coronal, sagittal and axial positions for both PET and CT patient.			
Gantry aperture : 70cm or more			
The system shall be capable of conventional and helical scanning for full body imaging			
CT Scan field : 70cm or more			
Max. CTAC FOV : 70 cm or more			
Min. rotation speed (360 degree) for all application : 0.35sec or faster			
Helical pitch range and increments and if freely selectable			
Max. scan time : 100 sec or less			
Min. slice thickness : 0.625 mm or less			
Temporal resolution : please state			
Detector System			
No. of CT projection per rotation : 128 Slice or more			
Number of elements : 45,000 or more			
Detector coverage : 38mm or more			
High resolution algorithm:			
X/Y-plane : >15 lp/cm @ at 0 % MTF			
Z plane >17 lp/cm @ at 0 %MTF			
CT Image Quality			
Dose Reduction techniques shall be available			
Automated mA modulation during scanning			
Automated pediatric dose optimization feature			
mA adjustment depending on patient size			
High Power X-ray system			
Max. Power output : 70 kW or more			
Max. Tube Anode heat storage capacity : 7 MHU or more			
Max. Tube current 20-600 mA			
Max. Tube Voltage : 80-140 KV			

	Patient Table System			
	Single patient table, horizontal as well as vertical bed movement			
	Table Load Capacity: 200 kg or more			
	Horizontal scan range : 170 cm or more			
	Vertical bed travel : 55-105cm or better			
	System shall be equipped with emergency stop button for manual over-ride for patient safety.			
	Operator shall be able to control table position from acquisition console or switches on either side of the gantry.			
	Head positioner- with good immobilization-pediatric immobilizer-sandbag			
	Operator Console with Image Display & Management			
	One fully integrated PET and CT console or better			
	System shall support patient scheduling and data entry, exam protocol selection, protocol viewing and editing, scan data acquisition, image reconstruction, image display and routine analysis, Autofilm, Autostore, Autotransfer.			
	A wide range of pre-defined examination protocols with capability of parameters editing			
	Smooth and automatic proceed of multi-bed scanning			
	Real time display of total count rate shall be available			
	Advanced Image processing such as multi planar reconstruction, multi planar volume rendering and maximum intensity projection.			
	Simultaneous acquisition, reconstruction, display, archival and network			
	Single and multiple image display			
	Display of cine whole body projection views and in three orthogonal planes			
	Real time monitoring on contrast enhancement			
	Special clinical sequences or protocols with a wide range of mAs settings adaptable to a child's weight and age for reduction of effective patient dose.			
	Volume viewer for PETCT with tools for viewing SUV			
	Filming/Printing capability to a DICOM & PS printer			
	Dedicated Metal Artifact reconstruction algorithm like iMAR/SmartMAR has to be provided for reducing metal artifact reduction in contrast & plain studies.			
	Dose reduction method			
	Real time dose modulation based on Z-axis			
	Further dose reduction incorporating X and Y axes			
	X-Ray beam tracking to minimize patient dose			
	X-Ray beam filtration independently for Body & Head			
	70 cm attenuation correction for PET			
	System Console Peripherals			
	Assigned to application software and image files			
	Hard Disk Drive : Please state			
	Data Archiving : CD & DVD +PACS			
	LCD monitor : Two 19" LCD or more- atleast 10 workstations with UPS			
	Monitor shall be of resolution 1280 x 1024			
	View, analyze and QC integrated PET/CT data			
	PET Reconstruction Algorithms			
	Routine reconstruction algorithm : should have High Definition and TOF reconstruction			
	To provide low noise high quality PET images in a short time after acquisition, the PET reconstruction algorithm should have advanced reconstruction technique to have higher SNR: Please state			
	Advanced Reconstruction algorithm which is vendor specific should be quoted as option			

with separate price.		50	
3D reconstruction technique including:			
Random events correction			
Detector normalization and dead-time correction			
Detector geometry modeling			
Attenuation correction using CT patient data in the whole 70cm transverse FOV			
Iterative volume scatter correction based on PET and CT data			
Advanced reconstruction algorithm :			
To further enhance SNR on PET images.			
PET-detector response incorporating PSF as a function of several scanner parameters including detector sampling width, detector geometry and parallax effect.			
Simultaneous multi-statics and motion acquisition for PET detection enhancement			
Advanced list-mode acquisition allowing simultaneous list mode and whole body multi-static, dynamic and gated PET acquisitions in single acquisition			
Motion workflow shall be able to be made available for routine practice and reconstruction should be able to be done in one single console workstation.			
Relevant hardware and/or software to be provided to perform the respiratory gating application.			
Respiratory Gated motion correction, with or without external hardware			
CT Advanced Reconstruction Algorithm			
Statistical iterative reconstruction : sinogram space IR or better			
Allows further reduction in dose to patients compared to conventional method			
Subtraction of noise level by raw data reconstruction			
The supplier shall provide evidences of its dose reduction claims (images, publication, installed base, references list)			
Routine CT application protocols			
Acquisition at Main console with advanced evaluation at workstation.			
Software for autobone removal, MPR, VR and multi organ perfusion imaging should be given at one of the workstation			
0.35 seconds or less routine spiral (360 degree full rotation) scan for diagnostically enhanced temporal resolution			
Advanced dose reduction features.			
Independent Review & Analysis workstation (10 units) from same manufacturer with UPS for each system			
Provide details & antivirus options			
Offline DICOM CD/DVD burner & pendrive attachment			
The workstations shall be able to work off-line from operator console and/or other workstation(s).			
User / Application Software Package (on all workstation)			
Topogram			
Statistical evaluation and MPR			
Cine display			
Image annotation and labeling			
Reduction of volume artifact			
Multi-modality review, comparison and processing & opions for composite image generation			
3D Volume Rendering analysis			
Fused Volume Rendering for PET and CT			

	Navigator and other volumetric visualization and analysis tools			
	Image registration for multi-modality			
	Fusion software for PET and MR			
	Fusion software for CT and MR			
	Fusion software for PET and SPECT and MRI/PISCOM			
	Cardiology Application: Dedicated licensed latest version of - 4DM Dynamic cardiac quantitation software with normal patient database which includes complete package of cardiac processing for PET based quantitation of absolute myocardial blood flow and coronary flow reserve (CFR)			
	Licensed latest version of Emory Cardiac Tool Box with normal file database for PET for quantitative assessment of perfusion defects, quantitative gated parameters, viability assessment based on both Ammonia/FDG and SPECT perfusion/FDG.			
	Oncology Application-MIM software			
	Application software shall be licensed in all workstations			
	MIM Oncology software to assist clinicians in diagnosis, staging, treatment planning and monitoring treatment response.			
	Visualization and analytical monitoring of disease progression or response to treatment or therapy using multiple exams comparison.			
	Automated visualization and highlights of abnormal and suspicious lesion for PET radiopharmaceutical uptake			
	Allows measurement of SUV and volume for any PET defined metabolic activity.			
	Auto define metabolic volume SUV contouring.			
	Select and define circular and rectangular ROI.			
	Adaptation of segmentations, 3D visualization of segmented lesions, auto-measurements of RECIST			
	RECIST/WHO measurements (manual and automatic)			
	Shall have quantification analysis for both RECIST and PERCIST criteria			
	Automatic fetching of relevant prior studies for multi-time point comparison.			
	Display of analytical information in a tabular format for quick comparison, percent change, enables structured reporting, allows direct interaction between multiple exam reviews.			
	The Virtual Simulation software should be available to process the CT data or PETCT data for RT planning and there should be an option to provide RTSS dataset to transfer the segmented data to RT system.			
	If work is in progress, the stated and relevant application software; when become commercially available must be upgradeable at no extra cost within the warranty period			
	Neurology Application:			
	Application software shall be licensed (permanent)			
	Fully automated analysis method comparison with normal database			
	Provides review of PET neuro scans with a general re-orientation of the scan volume to standard neurological orthogonal views along the Intercomissural AC-PC line			
	Allows statistical mapping of regional metabolic reduction			
	Comparison to age-stratified asymptomatic normal database			
	Allows previous studies (CT & MR) to be loaded and viewed side-by-side with PET images.			
	Fusion with MRI & SISCOS & PISCOM			

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6	Environmental Requirement		52	
	Safety and Standard Certifications			
	Approved by FDA and passed factory approval test			
	Please state any other extra safety feature offered			
	The performance of the unit shall conform to all national radiation protection regulations in force for equipment generating ionizing radiation.			
	AERB Type approved CT of PETCT at time of quoting and supply, required phantoms must be listed in AERB.			
7	OTHER COMPONENTS			
	High Pressure Dual Head Injector: 1 Unit			
	A High Pressure dual syringe Injector compatible with the PETCT system with WIFI capability shall be provided.			
	The system shall be freely movable and have user selectable multiple protocols.			
	Dual Head Contrast injector			
	full system UPS			
	Calibration Phantom for scanner to be provided , included in CMC including return of phantom after useful life for 10 years during warranty and CMC			
	Lead Glass window for console 3*6			
8	Accessories			
	Head rest for extension of scan range:			
	Head holder (various sizes):			
	Patient belt:			
	Positioning aids:			
	Built-in 2 way intercom			
	FDG lead equivalent lead wastebin			
	Dose Calibrator PET (1 Unit) with 10 mCi Cs-137 standard source			
	FDG lead equivalent- L bench, Syringe carrier/pigs (4) and dose carrier/lead box (2)			
	Lead Brick Cave, 3 Wall, 2" Lead (1 Unit)			
	Digital Pocket Dosimeter (2 Units)			
	Lead Apron Coat (1 Unit)			
	Crash Cart with adult and pediatric patient monitoring system			
9	AFTER SALES SUPPORT			
	Marketing support			
	Bidder shall provide collateral with Nuclear department for new technology promotion exercise.			
10	Training			
	Bidder shall provide On-site application specialist training for at least 10 working days and at least 5 days for follow-up training in at least 2 sessions for end-users.			
	The application training shall satisfy the following;			
	Comprehensive application training on-site training shall be given to the Nuclear Medicine Physicians and Technologists prior to the system acceptance to enable the technical staff to operate the system without assistance.			
	Bidder shall train and provide documentation format (if applicable) on the equipment Quality Control (QC) tests for end-user to maintain high performance of system and standardization of monitoring pattern			

11	Warranty: 5 years.			
	CMC: 5years. (Should include QA QC as per AERB noms.) Included 4 preventive maintenance/ year and all breakdown visits. All bought out items used in system should also be included in the warranty. **Calibration source with disposal at end of contract period & UPS battery maintainence**			
12	PACS with UPS			
	Only Yes or No should be mentioned in compliance report and additional information should in remark columns.			

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