

27.12.2021

Amendment No. 5

Sub: Extension of due dates and amendment to Qualification Criteria to the referred tender enquiry

Ref.: HITES/PCD/AIIMS-IV/42/Rad-Onc/21-22 dated 13.09.2021 read with its amendment no 1, 2, 3 and 4 dated 22.10.2021, 08.11.2021, 26.11.2021 and 20.12.2021

The following changes are being incorporated in the above referred Tender Enquiry Document.

SECTION VII**Technical Specification**

Tender ref: HITES/PCD/AIIMS-IV/42/Rad-Onc/21-22 dated 13.09.2021		
Item no 01. Advanced High Energy Linear Accelerator (LA) System (Tender ID: 2021_HLL_88075_1)		
Tender Page & Para	TENDER SPECIFICATION	AMENDED AS
Page 43	Model released in the year 2010 or later.	Model released or upgraded with the latest technologies in the year 2010 or later.
Page 43, Para A.1	Electron Energy Highest energy for electrons 15 MeV or above.	Electron Energy with range from 6 MeV upto 20MeV (minimum 5 energies to be provided). In addition, one low energy electron 4 or 6 MeV with high dose rate more for total body skin electron therapy treatment along with all necessary accessories.
Page 44, Para 14	Multi-leaf collimator (MLC):	Multi-leaf collimator (MLC): Added Para : The resolution of MLC width should be of 5 mm at isocenter for the field sizes of minimum 20 x 20 cm2.
Page 46, Para 24	Treatment Planning System: Server (backup/restore) – latest HW/SW and upgradable for next 10 yrs.	Treatment Planning System: Server (backup/restore) – latest HW/SW and mandatory software updates for next 10 yrs.
Page 46, Para 27	Upgradation:	Updates :
Page 47, Para 29	Dosimetry and QA RADIATION THERAPY BEAM ANALYZER The detector unit should be driven by stepper motor and step length should be adjustable in steps of 5 mm or better. The scanning speed should be adjustable between 5mm/s and 50mm/s in 5mm/s small steps. Further the delay times for each step should also be adjustable by the user. The acceleration of the step	Dosimetry and QA RADIATION THERAPY BEAM ANALYZER The detector unit should be driven by stepper motor and step length should be adjustable. The scanning speed should be adjustable between 5mm/s and 25mm/s or more with small steps. Further the delay times for each step should also be adjustable by the user. The acceleration of the step movement should also be changed as and when required.

	movement should also be changed as and when required.	
Page 47, Para 29	<p>Dosimetry and QA Water Phantom/ Radiation Field Analyzer: The scanning volume should be large enough to scan and should not be less than 48x40x48 cm To avoid bending of the tank's walls by water pressure and water absorption of the acrylic material 1 wall thickness should be not less than 2.0 cm. The RFA offered should come with water level sensor / adjustment software without need for adjustment of the water leveling screws.</p>	<p>Dosimetry and QA Water Phantom/ Radiation Field Analyzer: The scanning volume should be large enough to scan and should not be less than 48x40x48 cm To avoid bending of the tank's walls by water pressure and water absorption of the acrylic material 1 wall thickness should be in the range of 1.5 cm - 2.0 cm. The RFA should be offered with appropriate mechanism for water leveling.</p>
Page 47, Para 29	<p>Dosimetry and QA - Water reservoir The Lifting carriage and Water Reservoir must be imported and directly from the suppliers and must complete with all facilities including TPR and TMR measurements. Completely Integrated Lifting Carriage and Water Reservoir.</p>	<p>Dosimetry and QA - Water reservoir The Lifting carriage and Water Reservoir should be of either separate / Integrated mechanism and should provide the facilities and accessories for TPR and TMR measurements.</p>
Page 48, Para 29	<p>Dosimetry and QA - Water reservoir A separate electrometer to collect the ions/dose from the chamber/detector should be there The voltage to the chamber should be adjusted in the electrometer in steps of 50 V. The polarity of the chamber should be toggled between +/- . The electrometer should also be able to measure absolute doses for low and high energy photon and electron.</p>	<p>Dosimetry and QA - Water reservoir A separate or integrated electrometer to collect the ions/dose from the chamber/detector should be there The voltage to the chamber should be adjusted in the electrometer in steps of 50 V. The polarity of the chamber should be toggled between +/- . The electrometer should also be able to measure absolute doses for low and high energy photon and electron.</p>
Page 48, Para 29	<p>Dosimetry and QA - Water reservoir The time constant should allow 10ms measurement times</p>	<p>Deleted</p>
Page 48, Para 29	<p>Dosimetry and QA - Water reservoir The co-ordinates of the probe should display for all directions, simultaneously on a control pendant.</p>	<p>Dosimetry and QA - Water reservoir The co-ordinates of the probe should display for all directions, simultaneously on a control pendant.or software</p>
Page 48, Para 29	<p>Dosimetry and QA - Water reservoir The control pendant can be attached either to the water tank or to the control unit.</p>	<p>Dosimetry and QA - Water reservoir The control pendant / water phantom can be attached either to the water tank or to the control unit. Or via remote control inside the room or from outside via software</p>
Page 50, Para 29	<p>ARRAY DETECTOR One Array device must be based on ion chamber array resulting in an effective measuring field of 27 cm x 27 cm and</p>	<p>ARRAY DETECTOR One Array device must be based on ion chamber array resulting in an effective measuring field of 24.5 cm x 24.5 cm or above and giving the facility to use with slab</p>

	giving the facility to use with slab phantom for measurements. The chamber must be vented plane-parallel square shaped ion chambers with 5mmx5mmx5mm size and centre to centre spacing must be 10mm.	phantom for measurements. The chamber must be vented plane parallel shaped square with minimum of 5mm x 5mm or Cylindrical ion chambers with at least 4mm diameter size and center to center spacing must be at least 8 mm.
Page 50, Para 29	ARRAY DETECTOR Cylindrical & Rotational Phantom with inclinometer, lifting trolley & complete drive assembly with related software module for VMAT dynamic IMRT techniques. There should be a slot & provision to insert the 2D Ion Detector Array System into the Rotational Phantom for taking synchronous measurements with the Linac Gantry Rotation. The detector should always be perpendicular to the beam & thus removing the angular dependence.	ARRAY DETECTOR Square or Cylindrical / Rotational Phantom with , lifting trolley & complete drive assembly with related software module for VMAT dynamic IMRT with FFF techniques. There should be a slot & provision to insert the 2D Ion Detector Array System into the Square or Rotational Phantom for taking synchronous measurements with the Linac Gantry Rotation. The detector should always be perpendicular to the beam & thus removing the angular dependence.
Page 50, Para 29	ARRAY DETECTOR The software should have the functionality like 3D volume analysis and CT overlay	ARRAY DETECTOR The software should have the functionality like 3D volume analysis and CT overlay or 3D DVH comparison should be possible with DVH calculated in the real patient CT
Page 50, Para 29	ARRAY DETECTOR One additional Array Device with 900 or above liquid filled ionization chamber for patient plane verification & quality control of small fields. Detector spacing should be 2.5mm & the maximum fit size should be above 10x10 cm & below 12 x 12cm essentially for use with Small field dosimetry. The Array device should also be usable for Stereotaxy work This Array device should be usable with the Cylindrical & Rotational Phantom	Deleted
Page 51, Para 26	26. Immobilization devices 3 set Universal treatment base plate (AIO) Made of Carbon Fiber Immobilization devices having a total solution to treat Pediatrics to Adult, Head and Head & Neck Breast, Thorax, Abdomen, Pelvic with facility to make custom made Supine and prone head rest for Individual Patients to maintain an accuracy of less than 2mm. along with appropriate thermo Sheets 200 no.s: 40 for head, 40 H&N, 40 for breast, 40 for thorax, 40 for abdomen and pelvic.	26. Immobilization devices 3 set Universal treatment base plate (AIO) /Separate Boards Made of Carbon Fiber Immobilization devices having a total solution to treat Pediatrics to Adult, Head and Head & Neck Breast, Thorax, Abdomen, Pelvic with facility to make custom made Supine and prone head rest for Individual Patients to maintain an accuracy of less than 2mm. along with appropriate thermo Sheets 200 no.s: 40 for head, 40 H&N, 40 for breast, 40 for thorax, 40 for abdomen and pelvic.
Page 57, Para	The following items to be quoted as OPTIONAL (price to be quoted separately)	The following items to be quoted as OPTIONAL (price to be quoted separately)

	1. Closed circuit cameras of reputed company should be provided in the examination room, console room, linear accelerator and waiting areas.	1. Closed circuit camera system (including NVR, display monitor, containment cables and associated accessories) of reputed company should be provided in the examination room, console room, linear accelerator and waiting areas.
Page 55, Para 2.e	THE ELECTRICAL WORKS: 2 e. General lights – Mirror optical type 1X28 W or 2X28 W/CFL fittings 2X36, 3X36 W with electronic ballasts	THE ELECTRICAL WORKS: 2.e General lights – Ceiling mounted LED lighting panels, recessed 600 x 600mm, should be provided. Light dimming facility should be provided wherever it is necessary
Item no 02. HDR BRACHYTHERAPY (Tender ID: 2021_HLL_88075_2)		
Tender Page & Para	TENDER SPECIFICATION	AMENDED AS
Page 59, Para 1.10	The Source head should have adequate shielding. The distance from the couch to the head should be adjustable	The Source head should have adequate shielding. The distance from the couch to the head should be adjustable / fixed
Page 59, Para 2.1	The system should use radioactive sources of Ir-192	The system should use radioactive Sources Iridium -192 / Cobalt-60 Added Para : The successful bidder in case if they have the Cobalt-60 based HDR Brachytherapy System, bunker modification and extra shielding for the bunker (if required) will be the responsibility of the supplier. (This is apart from already specified Scope of Work for Site Modification) The bunker modification cost and cost for extra shielding (if required) will also be considered for L1 calculation.
Page 59, Para 2.2	source strength should be of at least 10Ci Ir-192	The source strength should be of at least 10Ci Ir-192 or 2 Ci for Co-60
Page 59, Para 3.1	Stand alone and independent PC based control unit should be provided with flat panel 21" or larger plasma color monitor, keyboard, mouse build in audio card, network card, backup media, printer etc and direct link with 3D-TPS to be supplied.	Stand alone and independent PC based control unit should be provided with flat panel 19" or larger plasma color monitor, keyboard, mouse build in audio card, network card, backup media, printer etc and direct link with 3D-TPS to be supplied.
Page 60, Para 4.8	The Networking (on-line) between HDR treatment unit and TPS should be provided and it should be connected with CT machine and simulator and other imaging modalities	The Networking (on-line) between HDR treatment unit and TPS should be provided and it should be connected with CT machine and simulator and other imaging modalities Added Para : The Networking (on-line) between HDR treatment unit and TPS is the responsibility of HDR Brachytherapy vendor.

Page 60, Para 4.10	The system should have at least 21" TFT LCD Screen with high resolution for good visualization	The system should have at least 19" TFT LCD Screen with high resolution for good visualization
Page 60, Para 4.13	The vendor should provide advanced model-based dose calculation algorithm for in homogeneity correction in dose calculation as per the AAPM TG-186 recommendations	The vendor should provide advanced model-based dose calculation algorithm for in homogeneity correction in dose calculation as per the AAPM TG-186 / TG43 recommendations
Page 60, Para 5.2	Gynaecological applicator Fletcher-Suit type – 6 sets	Gynaecological conventional applicator Fletcher-Suit type – 6 sets
Page 60, Para 5.3	Gynaecological application templates -4 set (4 sets Syed-Neblet OR 4 Sets of MUPIT with all required accessories)	Gynaecological application templates -4 set (4 sets Syed-Neblet OR 4 Sets of MUPIT with all required accessories) OR Equivalent
Page 60, Para 5.4	CT / MRI compatible gynaecological Fletcher-Suit type applicators – 2 sets	CT / MRI compatible gynaecological applicators made up of either Carbon Fibre or Titanium– 2 sets
Page 61, Para 5.8	Intrabronchial Applicators (reusable)– 4 sets	Intrabronchial Applicators : Either reusable type– 5 sets or disposable type of 10 sets
Page 61, Para 5.10	All kinds of x-ray dummy markers (two sets) for the applicators supplied (wherever relevant). Interstitial implant plastic tubes – total 1000 numbers and Interstitial implant plastic needles- 50 numbers each (20 G & 12 G) and interstitial implant stainless steel applicators-20 numbers.	All kinds of x-ray dummy markers (two sets) for the applicators supplied (wherever relevant). Interstitial implant plastic tubes – total 1000 numbers and Interstitial implant plastic needles- 50 numbers each (20 G & 12 G) or 2mm diameter - 100 nos and also vendor should provide interstitial implant stainless steel applicators-20 numbers.
Page 61, Para 5.12	Vendor should provide extra two sets of transfer tubes for Gynecological applicator Fletcher-Suit type	The vendor has to supply total 3 sets of transfer tubes (one with main config and 2 sets extra) for both standard fletcher and also for CTMR fletcher
Page 61, Para 6.4	Source position simulator and source check ruler	Source position simulator and source check ruler or equivalent
Page 61, Para 7.5	Source: (i) minimum 10 sources (Ir-192 source) should be offered for 5 years period (one source in every four months interval or as and when required) to maintain HDR treatment delivery. The 10 sources' cost should be quoted separately and this will be considered for L1 calculation. Loading of new source and unloading of the decayed source, source transportation, source export and disposal will be part of the offer.	Source: (i) minimum 10 sources of Ir-192 source or one source of Co-60 should be offered for 5 years period (one source in every four months interval or as and when required) to maintain HDR treatment delivery. The 10 sources' of Ir-192 source or one source of Co-60 cost should be quoted separately and this will be considered for L1 calculation. Loading of new source and unloading of the decayed source, source transportation, source export and disposal will be part of the offer.
Page 57, Para 1	Scope of Work for Site Modification: General Requirements (The site plan is attached herewith as Annexure I).	Scope of Work for Site Modification: General Requirements
Page 57, Para 2	The cost of the site modification work should be quoted separately and this cost	The cost of the site modification work for 500 sq Feet should be quoted separately and this cost will be

	will be considered for L1 calculation.	considered for L1 calculation.
Page 57, Para 7	Rate quoted for Site modification work, Furniture like desks, chairs, shelves etc; and the price quoted for 7 TR HVAC is included for L1 calculation of the bids.	Rate quoted for Site modification work (500 sq Feet) , Furniture like desks, chairs, shelves etc; and the price quoted for 7 TR HVAC is included for L1 calculation of the bids.
Item no 03. CT Simulator System-16 Slice (Tender ID: 2021_HLL_88075_3)		
Tender Page & Para	TENDER SPECIFICATION	COMMITTEE RECOMMENDATION
Page 64, Para	The CT scanner should be of spiral multi-slice, large-bore at least 16 slices per rotation model which should be capable of 4DCT acquisition. It should also be capable of integrating with standard networking and PACS systems available in the hospital. The offered equipment should have the following technical features.	The CT scanner should be of spiral multi-slice, large-bore 16 slices or more per rotation model which should be capable of 4DCT acquisition. It should also be capable of integrating with standard networking and PACS systems available in the hospital. The offered equipment should have the following technical features.
Page 64, Para 1.1	The system should be of latest slip-ring technology allowing acquisition of 16 slices per rotation with true isotropic volume acquisition and sub millimetre resolution of an at least 0.4mm	The system should be of latest slip-ring technology allowing acquisition of 16 slices or more per rotation with true isotropic volume acquisition and sub millimetre resolution of an at least 0.4mm
Page 64, Para 2.1	High frequency x-ray generator with an output of at least 80 KW or more to support continuous and sustained operation. Please give details	High frequency x-ray generator with an output of 75 KW or more to support continuous and sustained operation. Please give details
Page 64, Para 3.4	X-ray Tube: The x-ray tube should have anode heat storage capacity of 8 MHU or more or direct cooling	X-ray Tube: The x-ray tube should have anode heat storage capacity of 6 MHU or more
Page 65, Para 4.2	Gantry tilt should be at least ± 30 degree	Deleted
Page 65, Para 5.3	Table should have the metal-free scan range should be at least 150 cm.	Table should have the metal-free scan. Please specify horizontal travel range of offered system.
Page 65, Para 5.4	Horizontal accuracy should be ± 0.50 mm or less	Horizontal accuracy should be ± 1 mm or less
Page 65, Para 5.7	The table should have total free floating facility	Deleted
Page 65, Para 5.8	All patients positioning accessories including tilt should have control both from gantry and control console	Deleted
Page 65, Para 6.5	Gapless spiral length should be 150cm or more	Please specify Gapless spiral length of offered system
Page 65, Para 6.10	Prospective and Retrospective respiratory compensated/gated CT to generate 4D datasets must be compatible with all commercially available hardware and software for motion management to localize the tumour in motion.	Retrospective and / or Prospective respiratory compensated/gated CT to generate 4D datasets must be compatible with all commercially available hardware and software for motion management to localize the tumour in motion. Specify the details

	Specify the details	
Page 66, Para 10.1	High Contrast Spatial Resolution: It should be 15 lines pair per cm or better (for 50 cm FOV) maximum at 0% MTF Clearly specify the phantom used, scan time, mA, filter for image reconstruction, scan field, dose and MTF.	High Contrast Spatial Resolution: Specify the high contrast resolution. Clearly specify the phantom used, scan time, mA, filter for image reconstruction, scan field, dose and MTF
Page 67, Para 13.7	Two no.s of CT simulation workstations must be provided in addition to the CT workstation	One number of CT simulation workstation must be provided in addition to the CT workstation <i>(Unit Price to be quoted separately)</i>
Page 67, Para 16.1	If should support extensive beam shapers (shielding blocks etc.) and beam definition methods	If should support extensive beam shapers and beam definition methods
Page 67, Para 16.3	Beam shaping should be possible in multiple ways like automatic shielding block , definition conforming to selected volume, definitions aperture or shielding manual free hand definition, automatic collimator jaw or multi leaf position definition	Beam shaping should be possible in multiple ways like definition conforming to selected volume, definitions aperture or shielding manual free hand definition, automatic collimator jaw or multi leaf position definition
Page 71, Para 23.17.iv	Fire detection system – Comprising of fire panel, smoke / heat detectors	FIRE SAFETY MEASURE: 1. A fire alarm system of reputed make with smoke/ heat detectors, indicator panels, call boxes, electronic sirens and wiring will be installed. Audio call bell system with intercom & remote locking /unlocking facility to be provided at the main door of the complex. 2. Supplying, Installing Dry chemical power type fire extinguisher of 5kgs capacity, with initial filling in brand new cylinder with power coated finish, fitted with Gun metal union, high pressure CO2 gas cartridge, discharge hose, wall mounting bracket etc. complete, confirming to IS:2171 of approved make & complete as directed by EIC.
Page 71, Para 23.19.a.i	CABLES - Gloster, Universal, Polycab	CABLES - Gloster, Universal, Polycab, Havells.
		<i>Added Para: Epabx Switch to be provided by the vendor.</i>
		<i>Added Para:</i> <i>The following to be provided :</i> <i>a. Laser check tool:- QA tool to verify iso-centre matching with laser system</i> <i>b. Contrast Injector</i> <i>c. Optional items :-</i> <i>1.Portal Dosimetry for quick treatment verification for complex treatment.</i> <i>2. 4D Gating with breath hold treatment option</i> <i>3.6D Couch</i>

All other contents of the Tender enquiry including terms & conditions remain unaltered.

Note:

- I. Prospective Bidders are also advised to check the website regularly prior to the closing date and time of online submission of bids