Amendment No. 2

30-10-2017

Sub: Amendment to the Bidding Document

Ref.: Notice Inviting Bid ref. HITES/PCD/NCI-AIIMS/04/17-18 dated 25.09.2017 read with its Amendment No 1 dated 26.10.2017

The following changes have been authorised and are being incorporated in the above referred Bidding Document.

SECTION - III
SPECIAL INSTRUCTIONS TO BIDDERS (SIB)

Qualification Criteria (Ref. GIB Clause 30.1)

The Purchaser reserves the right to ask for a free demonstration of the quoted equipment after giving reasonable time to the bidder at a pre-determined place acceptable to the purchaser or at site (in case of non-portable and heavy equipment) for technical acceptability as per the bidding document specifications, before the opening of the Price Bid.

Comparison of Bids (Ref. GIB Clause 33 & 34)

The comparison of bids will be based on GIB Clause 33, 34 and if any, as specified in the Technical specification(s). However, at the time of award of contract, the value of award (bid value/contract value) shall be limited to the upfront charges payable by the exchequer for Supply, Installation, Testing & Commissioning value only on DDP basis which is inclusive of warranty (for number of years specified at section VI; List of Requirement, Part I) and any other item(s)/services detailed for upfront purchase in the technical specifications. The cost of any other parameters like CAMC price beyond the warranty period, cost of any Consumables, any other recurring expenditure, etc. which have been considered for ranking of bids or for freezing of rates shall not be part of tender/award/bid/contract value.

SECTION- VI

LIST OF REQUIREMENTS

Part II: Required Delivery Schedule:

Existing:

a) **For Indigenous goods or for imported goods if supplied from India:**
90 days from date of Notification of Award to delivery at consignee site. The date of delivery will be the date by when it is to be delivered at consignee site. Bidders may quote earliest delivery period.

Installation and Commissioning shall be done at the earliest but not later than 45 days of delivery of goods at site or date of handing over the site for installation, whichever is later.

b) For Imported goods directly from foreign:
90 days from the date of opening of L/C. The date of delivery will be the date of Bill of Lading/Airway bill. (Bidders may quote the earliest delivery period).

Installation and Commissioning shall be done at the earliest but not later than 45 days of delivery of goods at site or date of handing over the site for installation, whichever is later.

For delayed delivery and/or installation and commissioning liquidated damages will get applied as per GCC clause 23.

Amended as:

For Indigenous or Imported goods:

Supply, Installation and Commissioning to be completed **within 120 days** from the date of NOA or date of opening of LC or date of approval of layout drawing, whichever is later.

(In case of LC opening, necessary documents like valid Performance Security and Proforma Invoice are to be submitted within 30 days from the date of release of NOA. In case layout drawing approval is applicable, it should be submitted by the supplier within 21 days from the date of release of NOA.)

For delayed delivery and/or installation and commissioning liquidated damages will get applied as per GCC clause 23.

SECTION - VII

TECHNICAL SPECIFICATION AND GENERAL POINTS

A. TECHNICAL SPECIFICATION:

Item sl. no. 01

State of Art Linear Accelerator

Sl. No	Tender Page & Para	EXISTING SPECIFICATION	AMENDED SPECIFICATION
1	Page 44 Para 2.2.1	**2.2 Dose Rate and Beam Stability** **2.2.1** The maximum dose rate for routine clinical applications shall equal **at least 600 monitor units (MU)/min** or more for a 10 x 10 cm field at the depth of maximum buildup dose at a TSD of 100 cm for both photon beams.	**2.2 Dose Rate and Beam Stability** 2.2.1 The maximum dose rate for routine clinical applications shall equal at least **500 monitor units (MU)/min** or more for a 10 x 10 cm field at the depth of maximum buildup dose at a TSD of 100 cm for **all the three photon beams.**

Sl. No	Tender Page & Para	EXISTING SPECIFICATION	AMENDED SPECIFICATION
2	Page 45 Para 2.5	**2.5 Beam Quality Index:** Photon beam energy (MV) — Quality Index (QI) 6 MV — Specify 15 MV — Specify	**2.5 Beam Quality Index:** Photon beam energy (MV) — Quality Index (QI) 6 MV — Specify **10 MV — Specify** 15 MV — Specify
3	Page 46 Para 3.1	**3.1 Electron Beam Energies** Five clinically useful electron beam energies shall be provided. The lowest energy shall be 4 or 6 MeV and the highest energy shall be **16 MeV or above.** Energy shall be specified as the most probable energy (Ep) of the electron energy spectrum at 100 cm from the accelerator exit window.	**3.1 Electron Beam Energies** Five clinically useful electron beam energies shall be provided. The lowest energy shall be 4 or 6 MeV and the highest energy shall be **15 MeV or above**. Energy shall be specified as the most probable energy (Ep) of the electron energy spectrum at 100 cm from the accelerator exit window.
4	Page 50 Para 6.5.19	**6.5 Treatment Table / Couch** **6.5.19** Two extra spare control pendants shall be provided.	**6.5 Treatment Table / Couch** **6.5.19 : Deleted**
5	Page 51 Para 6.7.1	**6.7 Patient Alignment system** **6.7.1** Vendor is required to supply and install **4 sets green laser** alignment systems. A separate back pointer laser alignment system shall be provided and installed onto the linear accelerator on offer. All laser products shall comply with respective code of IEC safety of laser products.	**6.7 Patient Alignment system** **6.7.1** Vendor is required to supply and install **One set of 4-green laser** alignment systems. A separate back pointer laser alignment system shall be provided and installed onto the linear accelerator on offer. All laser products shall comply with respective code of IEC safety of laser products.
6	Page 51 Para 6.7.2	**6.7 Patient Alignment system** **6.7.2** Two spare sets of green lasers shall be provided.	**6.7 Patient Alignment system** **6.7.2 : Deleted**
7	Page 53 Para 6.10.1	**6.10 Wedge Systems** 6.10.1 Provision of either a set of standard physical wedge filters with wedge angles 15°, 30°, 45° and 60° 6.10.2 Provision of virtual or dynamic programmable wedge fields of g**enerating variable wedge angles starting from 1 0° up to 60**	**6.10 Wedge Systems** 6.10.1 Provision of **EITHER** a set of standard physical wedge filters with wedge angles 15°, 30°, 45° and 60° 6.10.2 Provision of virtual or dynamic programmable wedge fields of generating wedge angles . **All available range of wedge angles (15 deg to 60 deg) to be provided.**
8		**6.10 Wedge Systems:** **6.10.4** Provision of a statistics log for tracking the accuracy of the programmable wedge fields' profiles **6.10.5** Provision for automatic, motorized, universal wedge system for variable wedge angles from 0° up to 60.	**6.10 Wedge Systems:** **6.10.4** Provision of a statistics log for tracking the accuracy of the programmable wedge fields' profiles **OR** **6.10.5** Provision for automatic, motorized, universal wedge system for variable wedge angles from 0° up to 60.

Sl. No	Tender Page & Para	EXISTING SPECIFICATION	AMENDED SPECIFICATION
9	Page 54 Para 8.2	**8. Image-Guided Radiotherapy System** **8.2** A 3D volume CT image data is reconstructed from a series of 2D projection images acquired as the linear accelerator gantry is rotated. This image data can be used for verification of patient position and target motion. This shall have flexibility in providing full or partial gantry rotations, **with the opportunity to select a choice of gantry rotation speeds.**	**8. Image-Guided Radiotherapy System** **8.2 :** A 3D volume CT image data is reconstructed from a series of 2D projection images acquired as the linear accelerator gantry is rotated. This image data can be used for verification of patient position and target motion. This shall have flexibility in providing full or partial gantry rotations.
10	Page 57 Para 11.2	**11.2 Water Chiller System** 10.2.1 The chiller system shall be provided along with the machine by the principals. No local system shall be accepted. 10.2.2 The chiller system shall incorporate an automatic back-up facilities, remote control and alarm panel with warning facilities 10.2.3 Vendor should provide a fully automatic water chiller system for sufficient cooling of the linear accelerator	**11.2 Water Chiller System** **11.2.1** The chiller system provided **shall conform to international class / standards.** **11.2.2** The chiller system shall incorporate an automatic back-up facilities, remote control and alarm panel with warning facilities **11.2.3** Vendor should provide a fully automatic water chiller system for sufficient cooling of the linear accelerator
11	Page 58 Para 1.1	**1. General Requirements** **1.1** The system should be integrated with CT-Simulator, MR/PET and linear accelerators capable of dynamic sliding window IMRT and VMAT.	**1. General Requirements** **1.1** The system should be integrated **and connected** to CT-Simulator, MR/PET and linear accelerators capable of dynamic sliding window IMRT and VMAT.
12	Page 58 Para 1.4	**1. General Requirements** **1.4** Five treatment planning workstation with calculation licenses for 3D conformal planning and IMRT and VMAT planning capability and additional Five workstations for enabling contouring and virtual simulation with individual licenses should be provided. Vendor should provide the each unit price of both TPS and workstations offered.	**1. General Requirements** **1.4 2 no.s of TPS server with 128 GB RAM memory with Five treatment planning workstations** with calculation licenses for 3D conformal planning and IMRT and VMAT planning capability and **additional Five workstations** for enabling contouring and virtual simulation with individual licenses should be provided. **There shall be at least 10 TB storage for plan storage in addition to OIS storage.** Vendor should provide the each unit price of both TPS and workstations offered.
13	Page 59 Para 2.7	**2. Three-dimensional (3D) conformal Planning:** **2.7** TCP and NTCP calculations should be provided	**2. Three-dimensional (3D) conformal Planning:** **2.7 EUD or TCP** and NTCP calculations should be provided
14	Page 60 Para 6.13	**6. Dose Planning** **6.13** Automatic optimization of compensators.	**6. Dose Planning** **6.13 : Deleted**

Sl. No	Tender Page & Para	EXISTING SPECIFICATION	AMENDED SPECIFICATION
15	Page 61 Para 8.1	**8. Dose Calculation Algorithms:** **8.1** TPS should include **3-D Pencil Beam, Anisotropic Analytic, Convolution and Superposition algorithms for dose calculations of 3-D external beam applications with electron and photon beams.** Monte Carlo or equivalent (ACUROS-XB) calculations algorithms for Photon & Electron should be provided.	**8. Dose Calculation Algorithms** **8.1 TPS should include any of the following algorithms.: Electron beam: Monte Carlo or equivalent and ePB or equivalent.** **Photon beam : Monte Carlo or equivalent (ACUROS-XB) calculations algorithms for Photon & Electron should be provided and AA/CCC/ or equivalent.**
16	Page 63 Para 11	11. Four-dimensional (4D) Planning and **Adaptive Re-planning System :**	**11. Four-dimensional (4D) Planning**
17	Page 63 Para 11.3	**11.3** Specialized contouring tools should offer to make dose planning in 4D.	**11.3** Specialized contouring tools should offer to make dose planning in 4D.
18	Page 64 Para III.2	(I**II) ONCOLOGY INFORMATION & RECORD AND VERIFY SYSTEM** The system shall provide the following functions: Record and Review Patient Diagnoses; capable of recording the diagnosis as per the ICD C and ICD 10 system and complete ICD C and ICD 10 codes should be available in the system without requiring extra input, Plan a course of treatment in advance so that treatments are readily delivered when the patient arrives; Write RT prescriptions that detail treatment techniques, fractions, and dose; Define treatment fields; Link setup fields and notes to treatment fields; Setup notes should include photos that show how to set up the patient; Track dose to specific sites; Define site breakpoints with instructions that appear when the breakpoint will be exceeded; Store treatment plan information to avoid redundant and time-consuming data entry.	**(III) ONCOLOGY INFORMATION & RECORD AND VERIFY SYSTEM** The system shall provide the following functions: Record and Review Patient Diagnoses; capable of recording the diagnosis as per the ICD C and ICD 10 system and complete ICD C and ICD 10 codes should be available in the system without requiring extra input, Plan a course of treatment in advance so that treatments are readily delivered when the patient arrives; Write RT prescriptions that detail treatment techniques, fractions, and dose; Define treatment fields; Link setup fields and notes to treatment fields; Setup notes should include photos that show how to set up the patient; Track dose to specific sites; Define site breakpoints with instructions that appear when the breakpoint will be exceeded; Store treatment plan information to avoid redundant and time-consuming data entry. **Vendor should provide the each unit price of OIS workstation offered.**
19	Page 66 Para III.13	**(III) ONCOLOGY INFORMATION & RECORD AND VERIFY SYSTEM** The Hardware should consist of the following: 2 NO.S, separate, but fully integrated servers, one each for data management and image management with back up with 4 TB or more capacity or more to handle our busy department workload. In additional 5 Image Workstations for Review and Approval; a networked color image DICOM laser printer; capability for high speed internet connectivity for Online Service support. Vendor should provide licenses in order to use five users simultaneously.	**16.13** The Hardware should consist of the following: **One integrated server for data management and image management with back up with 8 TB or more capacity** to handle busy department workload. Additional 10 Image Workstations for Review and Approval; a networked color image DICOM laser printer; capability for high speed internet connectivity for Online Service support. Vendor should provide licenses in order to use ten user simultaneously.

Sl. No	Tender Page & Para	EXISTING SPECIFICATION	AMENDED SPECIFICATION
20	Page 66 Para 15.v	**15. Equipment Warranty and Service Facilities** **v.** During the warranty period, all the software updates **and upgradation** should be provided for free of charge.	**15. Equipment Warranty and Service Facilities** **v.** During the warranty period, all the software updates should be provided for free of charge.
21	Page 66 Para.16 .iii	**(III) ONCOLOGY INFORMATION & RECORD AND VERIFY SYSTEM** **16. Safety Standards and Training** **iii.** The vendor should provide comprehensive training on TPS in international center of repute where the offered system is extensively in use. Training should be provided for one Radiation Oncologist and one Medical Physicist. The training period should be at least for two weeks.	**(III) ONCOLOGY INFORMATION & RECORD AND VERIFY SYSTEM** **16. Safety Standards and Training** **iii. Deleted**
22	Page 68	**AIR CONDITIONING WORKs: (15 TR HVAC)**	**AIR CONDITIONING WORKS : (15 TR + 15 TR backup : Total 30 TR HVAC)**
23	Page 74	AERB approved Site and Facility Layout plan :	**AERB approved Site and Facility Layout plan : The site layout may be obtained from NC Jhajjar project office at AIIMS, Room no. 161.**
24	PAGE 72 ;para 14	**14. Staff Training and Documentation:** **14.1** The vendor should provide comprehensive training on Linear Accelerator, Treatment Planning in a well advanced center in any developed country for nine persons (Four for Radiation Oncologist, three for Medical Physicist and two technologists).The training period should be at least for two weeks.	**14. Staff Training and Documentation :** **14.1 Comprehensive Training for LINAC, TPS & OIS shall be provided to 6 personnel (2 Radiation Oncologists, 2 Medical Physicists , 2 Radiotherapy Technologists) in advanced centre where these equipment are already in clinical use / training facility for a period of 15 days.**

Item sl. no. 02

HDR Brachytherapy System

Sl. No	Tender Page & Para	EXISTING SPECIFICATION	AMENDED SPECIFICATION
1	Page 77 Para 5.8	**5.8** Breast and Prostate templates – 2 sets each (i) Biliary Applicators – 2 Each (ii) Intrabronchial Applicators (reusable)– 4 sets **(iii) Brain Applicators (Gliasite) – 10 each**	**5.8** Breast and Prostate templates – 2 sets each (i) Biliary Applicators – 2 Each (ii) Intrabronchial Applicators (reusable)– 4 sets
2	Page 77 Para 5.12	**5.12.** Vienna Applicator or its equivalent for combined interstitial and intracavitary application-2 sets **Balloon based Breast applicator-total 5 numbers.**	**5.12.** Vienna Applicator or its equivalent for combined interstitial and intracavitary application-2 sets
3	Page 79 Para 7.5	**7.5 Source: (i) minimum 15 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 **15 sources** cost should be quoted seperately 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.	**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 seperately 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.

Item sl. no. 03

4D CT –Simulator

Sl. No	Tender Page & Para	EXISTING SPECIFICATION	AMENDED SPECIFICATION
1	Page 85 Para 3.6	**3. X-ray Tube** **3.6** The x-ray tube should have dual focal spot (please specify the size of each focal spot). **The automatic selection of focal spot should be possible.**	**3. X-ray Tube** **3.6** The x-ray tube should have **single/dual focal spot** (please specify the size of each focal spot).
2	Page 85 Para 3.7	**3. X-ray Tube** **3.7** Filter and beam limiting device: Their Al equivalent (at least 5mm) and other specific features to reduce radiation dose to the patient must be specified.	**3. X-ray Tube** **3.7** Filter and beam limiting device: Their Al equivalent (at least 5mm) **and X ray beam tracking feature or any** other specific features to reduce radiation dose to the patient must be specified.
3	Page 85 Para 4.8	**4. Gantry** **4.8** Green laser patient alignment system with (gantry and external wall /ceiling mounted) stationary and mobile for radiotherapy planning should be provided.	**4. Gantry** **4.8 deleted.**
4	Page 85 Para 5.1	**5. Patient Table** **5.1** The scanning table should be universally flat with flat table top and should be compatible with tables of linear accelerators installed. The table should have patient positioning index system on carbon fiber table top.	5. Patient Table 5.1 The scanning table should be universally flat with flat table top and should be compatible with tables of linear accelerators **(Commercially available LINAC from either M/s Elekta or M/s.Varian)** installed. The table should have patient positioning index system on carbon fiber table top.
5	Page 86 Para 6.3	**6. CT scanning parameters** **6.3** Maximum true scan field of view should be at least 60 cm or more	**6. CT scanning parameters** **6.3** Maximum true scan field of view should be **at least 50 cm or more**
6	Page 86 Para 6.10	**6. CT scanning parameters** **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 tumor in motion. Specify the details.	**6. CT scanning parameters** **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 tumor in motion. Specify the details. **Required software and hardware to generate/acquire 4D CT imaging should be provided. Also required compatible hardware with commercially available LINAC based image acquisition solutions.**
7	Page 87 Para 10.1	**10. Image Quality** **10.1** High Contrast Spatial Resolution: It should be 15 lines pair per cm or better (for 60 cm FOV) maximum at 0% MTF for a **slice of 1 cm thickness**. Clearly specify the phantom used, scan time, mA, filter for image reconstruction, scan field, dose and MTF.	**10. Image Quality** **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.

Sl. No	Tender Page & Para	EXISTING SPECIFICATION	AMENDED SPECIFICATION
8	Page 87 Para 10.3	**10. Image Quality** **10.3** Spiral parameters: Different selection of pitch should be possible, from 0.5 to 3 in 0.1 increments. Inter scan delay in different group of spiral should not be more than 5 seconds.	**10. Image Quality** **10.3** Spiral parameters: Different selection of pitch should be possible, from 0.5 to **1.5 or more** in 0.1 increments. Inter scan delay in different group of spiral should not be more than 5 seconds.
9	Page 87 Para 10.4	**10. Image Quality** **10.4** CT number accuracy must be better than + 4HU for water and +10 HU for air. All necessary phantoms to check the spatial resolution of the scanner should be provided. **A phantom to check the electron density to HU relationship for different body tissues must be provided.**	**10. Image Quality** **10.4** CT number accuracy must be better than + 4HU for water and +10 HU for air. All necessary phantoms to check the spatial resolution of the scanner should be provided. CATPHAN with appropriate module should be supplied.
10	Page 87 Para 11.1	**11. CT Control Console** **11.1** It should have 20" or more TFT flat screen LCD colour monitor for display of 1024 x 1024 matrix or more.	**11. CT Control Console** **11.1** It should have **19" or more** TFT flat screen LCD colour monitor for display of 1024 x 1024 matrix or more.
11	Page 87 Para 11.2	**11. CT Control Console** **11.2** Computer CPU systems should be running on a high-end workstation platform with UNIX/Window of latest configuration. RAM size must be atleast 8GB or better.	**11. CT Control Console** **11.2** Computer CPU systems should be running on a high-end workstation platform with **UNIX/LINUX/ Window** of latest configuration. RAM size must be atleast 8GB or better.
12	Page 87 Para 11.4	**11. CT Control Console** **11.4** Image storage of **500 GB** or more for at least 2, 50,000 or more images in 512 x 512 matrixes uncompressed or better (quote the latest configuration)	**11. CT Control Console** **11.4** Image storage of **250 GB** or more for at least 2, 50,000 or more images in 512 x 512 matrixes uncompressed or better (quote the latest configuration)
13	Page 87 Para 11.8	**11. CT Control Console** **11.8 An on-line juke-box with total storage capacity of 1.5 Terra bytes with fully loaded media for data storage should be provided**	**11. CT Control Console** **11.8** : **A client server based advanced visualization solution with storage upto 2.5TB and to support 3 clients for CT Simulation.**
14	Page 87 Para 12.1	**12. Laser System** **12.1** The CT-Simulator laser systems should have **at least three computer controlled moving lasers** for marking the isocenter without moving the table top. Following the isocenter localization in the CT-Simulation workstation, the isocenter coordinate will be sent directly to the computer system that is controlling the movements of the lasers. This computer in turn should drive all the lasers, so that without moving table, the laser point to the isocenter. The laser must be GREEN LASER system. Complete quality assurance tools must be provided.	**12. Laser System** **12.1** The CT-Simulator laser systems should have **at least three moving lasers , computer controlled ,** for marking the isocenter without moving the table top. Following the isocenter localization in the CT-Simulation workstation, the isocenter coordinate will be sent directly to the computer system that is controlling the movements of the lasers. This computer in turn should drive all the lasers, so that without moving table, the laser point to the isocenter. The laser must be GREEN LASER system. Complete quality assurance tools must be provided.

Sl. No	Tender Page & Para	EXISTING SPECIFICATION	AMENDED SPECIFICATION
15	Page 87-88 Para 13.7	**13. CT-Simulation/Virtual Simulation System** **13.7** Three CT simulation workstation must be provided in addition to the CT workstation.	**13. CT-Simulation/Virtual Simulation System** **13.7** A client server based advanced visualization solution with Three CT simulation workstations must be provided in addition to the CT workstation.
16	Page 90 Para 20.5	**20. Equipment Warranty and Service Facilities** **20.5** During the warranty period, all the software updates **and upgradation** should be provided without asking for free of charge.	**20. Equipment Warranty and Service Facilities** **20.5** During the warranty period, all the software updates should be provided without asking for free of charge.
17	Page 90 Para 20.6	**20. Equipment Warranty and Service Facilities** **20.6** Please quote the rates of consumables recommended as well as other necessary consumables valid for 5 years block	**20. Equipment Warranty and Service Facilities** **20.6 : Deleted**
18	Page 90 Para 21.3	**21. Standards, Safety and Training** **21.3** The vendor should provide comprehensive training on CT-Simulator in a well advanced center in any developed country for two persons (one for Radiation Oncologist, one for Medical Physicist).The training period should be at least for two weeks.	**21. Standards, Safety and Training** **21.3** The vendor should provide comprehensive training on CT-Simulator **in a well advanced center where the system is in clinical use** , for two persons (one for Radiation Oncologist, one for Medical Physicist).The training period should be at least for **One week.**
19	Page 92 Para 1	**AIR CONDITIONING WORKs: (10 TR HVAC)** **1.** The area marked for Site Modification work needs to be air-conditioned. Package Air Conditioners may be used according to room requirement and suitability. Humidity control should be provided to effectively eliminate moisture condensation on the equipment. The Air conditioning system should be designed with standby unit(s) to provide uniform air-conditioning 24 x 7.	**AIR CONDITIONING WORKs: (16 TR HVAC: 10 TR + 6 TR backup)** **1.** The area marked for Site Modification work needs to be air-conditioned. **Package Air Conditioners / Split Air Conditioners** may be used according to room requirement and suitability. Humidity control should be provided to effectively eliminate moisture condensation on the equipment. The Air conditioning system should be designed with standby unit(s) to provide uniform air-conditioning 24 x 7.
20	PAGE 90	**Scope of Work for Site Modification: General Requirements**	**Added Para :** **Scope of Work for Site Modification: General Requirements.** 11. site layout may be collected from NCI Project office Room no. 161, first floor, DBRAIRCH building, AIIMS CAMPUS.
21		**Scope of Work for Site Modification:**	**Added Para :** **Scope of Work for Site Modification: General Requirements.** **Fire detection system** – Comprising of of fire panel, smoke / heat detectors.

Item sl. no. 04

Radiotherapy Dosimetry Equipment

Sl. No	Tender Page & Para	EXISTING SPECIFICATION	AMENDED SPECIFICATION
1	Page 96 Para 1.1.4	**Para 1.1.4** For Small field dosimetry, a dedicated design detector with latest technology based micro/nano ion chamber (one number) for extremely small field (5mmX5mm or less) should be provided along with optimal length cable for beam data measurement in water phantom, two numbers of **20m cables** with connectors compatible with water phantom and control console unit.	**Para 1.1.4** For Small field dosimetry, a dedicated design detector with latest technology based micro/nano ion chamber (one number) for extremely small field (5mmX5mm or less) should be provided along with optimal length cable for beam data measurement in water phantom, two numbers of **18m cables** with connectors compatible with water phantom and control console unit.
2	page 97 para 2.1.1	**2. Reference Dosimetry System** **2.1.1 . 3D Water Phantom:** The 3D water phantom should acquire beam profiles, depth dose curves and isodose distributions **even at arbitrary angles of beam incidence** with high level of accuracy. All components in the 3D water phantom should comply with national and international regulations and safety rules. The water tank should have optimally thick reinforced walls to prevent deformation and leaking. The water tank should be large enough to have a minimum scanning range of 480 mm X 480 mm and different scanning depths up to 400 mm. For fast and precise horizontal and vertical tank alignment there should be level positioning plate and device. The moving mechanism should be of stainless steel or equivalent high strength metal and not touch or dip into the water during measurements. The moving mechanism should be driven by high speed stepper motors or mangetostrictive technology or equivalent with high resolution and superior positional accuracy, (0.1mm, 15mm/sec or more) and software run variable speed. There should be a removable control pendant and menu controlled interface or equivalent mechanism for control of water tank moving mechanism.	**2. Reference Dosimetry System** **2.1.1 . 3D Water Phantom:** The 3D water phantom should acquire beam profiles, depth dose curves and isodose distributions with high level of accuracy. All components in the 3D water phantom should comply with national and international regulations and safety rules. The water tank should have optimally thick reinforced walls to prevent deformation and leaking. The water tank should be large enough to have a minimum scanning range of 480 mm X 480 mm and different scanning depths up to 400 mm. For fast and precise horizontal and vertical tank alignment there should be level positioning plate and device. The moving mechanism should be of stainless steel or equivalent high strength metal and not touch or dip into the water during measurements. The moving mechanism should be driven by high speed stepper motors or mangetostrictive technology or equivalent with high resolution and superior positional accuracy, (0.1mm, 15mm/sec or more) and software run variable speed. There should be a removable control pendant and menu controlled interface or equivalent mechanism for control of water tank moving mechanism.

Sl. No	Tender Page & Para	EXISTING SPECIFICATION	AMENDED SPECIFICATION
3	Page 98 Para 2.1.4	**2.1.4.** Vendor should quote for a transparent reference detector in the relative dosimetry for small fields. This detector should be of perturbation-free, beam invisible as a reference signal chamber using RFA measurements of PDDs and Profiles of all available energies especially for field size from 1x1cm2 to 2cmx2cm2. It should be mounted on the linac gantry with necessary adaptors and holders. The field size should be easily selectable without physically going inside the linac room.	**2.1.4.** Vendor should quote for a gantry-mounted / tank-mounted, transparent / **radiolucent** reference detector in the relative dosimetry for small fields. This detector should be of perturbation-free, beam invisible as a reference signal chamber using RFA measurements of PDDs and Profiles of all available energies especially for field size from **1cm x1cm to 20cm x 20cm.** It should be mounted on the linac gantry with necessary adaptors and holders. The field size should be easily selectable without physically going inside the linac room.
4	Page 98Para 2.1.5	2.1.5. **Data Acquisition and Analysis Software:** Advanced and comprehensive data analysis software should have all important dosimetry tasks implemented in modules with optimized workflows. There should be pre-defined measurement programs for PDD's, profiles, matrices for isodoses. The software should have task list defined with multiple energies, applicators, wedges, MLC, blocks, field sizes, SSD's, depths for fast beam data collection for Flat and FFF LINAC commissioning and TPS measurements as per regulatory body. Provision of direct measurement of flatness, symmetry, TPR/TAR/TMR, penumbra, beam quality, X-ray and electron contamination by the software. There should be dedicated software to convert PDD's to TPR curves. There should be software to use the dual channel electrometer for absolute dosimetry. **Necessary software to format and convert the measured data to the formats of all commercially available TPS has to be provided.** All established international protocols including the LINAC vendor specifications should be available. There should be facility to generate user specific protocol including that of AERB for easy, fast and structured measurement. The software should allow the user to scale and customize printouts. Additional software license should be provided for absolute dose measurement in RFA.	2.1.5. **Data Acquisition and Analysis Software:** Advanced and comprehensive data analysis software should have all important dosimetry tasks implemented in modules with optimized workflows. There should be pre-defined measurement programs for PDD's, profiles, matrices for isodoses. The software should have task list defined with multiple energies, applicators, wedges, MLC, blocks, field sizes, SSD's, depths for fast beam data collection for Flat and FFF LINAC commissioning and TPS measurements as per regulatory body. Provision of direct measurement of flatness, symmetry, TPR/TAR/TMR, penumbra, beam quality, X-ray and electron contamination by the software. There should be dedicated software to convert PDD's to TPR curves. There should be software to use the dual channel electrometer for absolute dosimetry. **Necessary software to format and convert the measured data to the formats of the purchased TPS has to be provided.** All established international protocols including the LINAC vendor specifications should be available. There should be facility to generate user specific protocol including that of AERB for easy, fast and structured measurement. The software should allow the user to scale and customize printouts. Additional software license should be provided for absolute dose measurement in RFA.

Sl. No	Tender Page & Para	EXISTING SPECIFICATION	AMENDED SPECIFICATION
5	Page 98 Para 2.1.6	2.1.6. Computer system/Laptop and Software for Data Analysis Latest laptop with latest available configuration like, **i7 processor or better, 10 TB HDD, on board 28 GB RAM, DVDRW, 2 TB NVIDIA graphic card,** Windows 7 (a compatible higher version if available), 15.1" (a compatible higher size if available) screen of 1960X1012 resolution and higher resolution if available along with the antivirus software should be provided. Color laser printer for A3 size printing with network, blue tooth and WiFi connectivity facility. A UPS system with 1 kVA capacity with 30 minutes backup time shall be supplied Provide complete details on this account.	2.1.6. Computer system/Laptop and Software for Data Analysis Latest laptop with latest available configuration like, i7 processor or better, 10 TB HDD**, on board 8 GB or more RAM,** DVDRW, 2 TB NVIDIA graphic card**,** Windows 7 (a compatible higher version if available), 15.1" (a compatible higher size if available) screen of 1960X1012 resolution and higher resolution if available along with the antivirus software should be provided. Color laser printer for A3 size printing with network, blue tooth and WiFi connectivity facility. A UPS system with 1 kVA capacity with 30 minutes backup time shall be supplied Provide complete details on this account.
6	Page 104 Para 2.1	**2. Patient Fixation / Immobilization Accessories:** **1.** Carbon Fiber Head Tilting Base Plate with variable angle 5° to 30° or above	**2. Patient Fixation / Immobilization Accessories:** **1.** Carbon Fiber Head Tilting Base Plate with variable angle 5° to 30° or above or **Wedge and slant to be provided.**
7	Page 104 Para 2.8	**2. Patient Fixation / Immobilization Accessories:** **8.** Head Support wide shaped (Different wide set's) 5 set	**2. Patient Fixation / Immobilization Accessories:** **8.** Head Support wide shaped (Different wide set's) **of PU material**
8	Page 104 Para 2.10	**2. Patient Fixation / Immobilization Accessories:** **10.** Carbon fiber Universal Prone Head Support	**2. Patient Fixation / Immobilization Accessories:** **10. Carbon fibre / Low Density material** - Universal Prone Head Support
9	Page 105 Para 2.11.d.	**2. Patient Fixation / Immobilization Accessories:** **11 Vacuum cushion-based System:** d. Vacuum Cushion Body Support 200x100cm	**2. Patient Fixation / Immobilization Accessories:** **11 Vacuum cushion-based System:** **d.** Vacuum Cushion Body Support 200x**70cm or more**
10	Page 106 Para 7.1	**7. General Conditions and Requirements:** **7.1** Required equipment/accessories/software offered against this tender shall have approval of the FDA USA or CE Europe as well as of the AERB, India.	**7. General Conditions and Requirements:** **7.1** Required equipment/ accessories/software offered against this tender shall have approval of the FDA USA or CE Europe **from Notified body with 4 digit certification body number** as well as of the AERB, India.

B. GENERAL POINTS:

1. Warranty:

Existing:

c) During the Warranty period, desired Uptime of 95% of 365/366 (Leap Year) days (24 hrs), if downtime more than 5%, the warranty period/CAMC period will be extended by double the downtime period. In addition a penalty equal to amount of 0.25 % of the total cost of equipment per day will be liveable for the excess downtime period. Complaints should be attended properly, maximum within 8 hrs.

Amended as:

c) During the Warranty period, desired Uptime of 95% of 365/366 (Leap Year) days (24 hrs), if downtime more than 5%, the warranty period/CAMC period will be extended by double the downtime period. Complaints should be attended properly, maximum within 8 hrs.

4. Comprehensive Annual Maintenance Contract (CAMC) of subject equipment:

Existing:

e) During the CAMC period, desired Uptime of 95% of 365/366 (Leap Year) days (24 hrs), if downtime more than 5%, the warranty period/CAMC period will be extended by double the downtime period. In addition a penalty equal to amount of 0.25 % of the total cost of equipment per day will be liveable for the excess downtime period. Complaints should be attended properly, maximum within 8 hrs.

Amended as:

e) During the CAMC period, desired Uptime of 95% of 365/366 (Leap Year) days (24 hrs), if downtime more than 5%, the warranty period/CAMC period will be extended by double the downtime period. Complaints should be attended properly, maximum within 8 hrs.

5. Uptime & Downtime Penalty Clause:

Existing:

b) During the Warranty period and CAMC period, desired Uptime of 95% of 365/366 (Leap Year) days (24 hrs), if downtime more than 5%, the warranty period/CAMC period will be extended by double the downtime period. In addition a penalty equal to amount of 0.25 % of the total cost of equipment per day will be liveable for the excess downtime period. Complaints should be attended properly, maximum within 8 hrs.

Amended as:

b) During the Warranty period and CAMC period, desired Uptime of 95% of 365/366 (Leap Year) days (24 hrs), if downtime more than 5%, the warranty period/CAMC period will be extended by double the downtime period. Complaints should be attended properly, maximum within 8 hrs.

All other contents of the Bidding Document including terms & conditions remain unaltered.