

## Schedule No. 04 - Radiotherapy Dosimetry Equipment (RfX no. 3000002261)

Sl. No	Tender Page & Para	TENDER SPECIFICATION	NAME OF THE FIRM	REPRESENTATION RECEIVED FROM THE FIRMS	COMMITTEE RECOMMENDATION
1	Page 96 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.	IBA Dosimetry	Request amendment to read as minimum of 18 M cables	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 96 Para 1.1.5	Two solid (water equivalent) phantom made up of slabs of different thicknesses shall be provided by the vendor for external beam teletherapy dosimetry. It shall be possible to use this phantom for both photon and electron beam dosimetry. The phantom shall be free of contaminants and air bubbles. Guarantee should be provided for electron density and homogeneity and shall be certified to be within 0.5% of water at photon energies. The slabs shall be of minimum 30 x 30 cm size totalling a thickness of 30 cm. The exact details of the slab thickness and their quantities shall be obtained from the user department. Different slabs (of 2 cm thickness) with appropriate cavities to accommodate the two 0.6cc ion chambers, parallel plate ion chamber should be provided additionally. Please note that these special slabs are in addition to the simple, solid slabs totalling a thickness of 50 cm. The phantom shall be of rigid type and should not show any kind of charge build-up effects. It shall not be affected by any change in ambient temperature and humidity.	IBA Dosimetry	Please clarify on solid slab totalling a thickness of 50cm.	clarified during pre-bid meeting
3			IBA Dosimetry	Please confirm field size to read as 1x1cm2 to 20x20cm2.	
4	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.	Pocindia	Vendor should quote for a Gantry mounted 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 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. Reason of modification: Gantry mounted radiolucent would be the correct term for the required detector.	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.
5	Page 98 Para 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 IINAC 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.	IBA Dosimetry	Necessary software to format and convert the measured data to the formats of the purchased TPS has to be provided.	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.
6		2.1.6. Computer system/Laptop and Software for Data Analysis latest laptop	IBA Dosimetry	i7 processor or better, 1 TB HDD, ON BOARD 16 GB RAM, DVD/RW (external), 2 GB NVIDIA graphic card...	2.1.6. Computer system/Laptop and Software for Data Analysis latest laptop with



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7	Page 98 Para 2.1.6	with latest available configuration like, i7 processor or better, 10 TB HDD, on board 8 GB RAM, DVD RW, 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.	Pocindia	Latest laptop with latest available configuration like, i7 processor or better, 10 TB HDD, on board 8 GB RAM, DVD RW, 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. <b>Reason of modification:</b> 8GB RAM is sufficient than 2GB RAM	latest available configuration like, i7 processor or better, 10 TB HDD, on board 8 GB or more RAM, DVD RW, 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.
8	Page 101 Para 6.2.1	<b>6.2. IMRT/VMAT QA Detector and Software System</b> 6.2.1 The detector array should be based on either ion chamber or diode chamber giving the highest resolution possible. The active volume of the chamber or diode must be very less. System should be calibrated for FFF applications at high dose rate. Adequate amount of buildup materials of different thicknesses should be provided for measurements with different energy beams. It must be possible to do automatic temperature and pressure verification devices. Latest available technology/model should be quoted for the transferring of data from the detector array to the processing desktop or laptop computer. In addition to the cable based connection, cable less technology also to be quoted.	Pocindia	This should be a separate device and not be merged with any other device provided in the same tender. An integrated IMRT & VMAT Verification System consisting of IMRT & VMAT Verification software interfaced with 4D Ion chamber / diode array and films from IMRT Beams along with IMRT Phantom. The IMRT phantom and film dosimetry system is for multiple film measurements and verification of absolute dose in IMRT treatments and the ion chamber/diode array will be required for real time measurement of IMRT Beam and QA of Linear Accelerator. Advanced software and hardware for fast and accurate acquisition of 4D beam data in real time and for high temporal and spatial resolution should be available. This should be provided with inclination sensor for gantry position while acquiring the 4D data fluence of VMAT dosimetry verification, if required for the system. Complete software latest windows based for dosimetric verification of IMRT treatments using complex fields with interface to 4D Detector arrays (preferably more than or equal to 1100 small volume ion chambers or semiconductor detectors). A 3D DVH comparison should be possible with the software on actual patient anatomy and CT. All necessary phantoms needed for DVH analysis and VMAT analysis along with the array detector should be supplied. 4D system should be capable of doing FFF measurements of upto 2400mu/min for 10FFF beams. <b>The 4D system should be capable of doing Stereotaxy measurements and any additional phantoms or arrays required to do the same should be provided.</b> <b>Reason of modification:</b> 2400 mu/Min capability is required for 10FFF. Hence should be mentioned. 4D QA is the latest technology in the industry and it would be suggested that the user be provided with this technology as it will significantly improve treatment quality and patient safety. Cable less technology should be optional. This should be a separate device and not be merged with any other device provided in the same tender.	no change
9	Page 101 Para 8	8. On-line/Real-time dosimetry system for during IMRT and VMAT Treatment	Pocindia	Can be made optional	no change
10	Page 104 Para 1	Carbon Fiber Head Tilting Base Plate with variable angle 5° to 30° or above	Pocindia	Carbon Fiber Head Tilting Base Plate with variable angle 5° to 30° or above or Wedge and slant to be provided.	Carbon Fiber Head Tilting Base Plate with variable angle 5° to 30° or above or Wedge and slant to be provided.
11	Page 104 Para 2	Carbon Fiber Head & Neck Base Plate with 5 Fixation Clamp	Pocindia	Carbon Fiber Head & Neck Base Plate with 5 Fixation clamp the same baseplate should be able to be used as a couch extension for brain treatments as well	no change
12	Page 104 Para 8	Head Support wide shaped (Different wide set's) 5 set	Pocindia	Head Support wide shaped (Different wide set's) of PU material	Head Support wide shaped (Different wide set's) of PU material
13	Page 104 Para 10	Carbon fiber Universal Prone Head Support	Pocindia	Universal Prone Head Support	Carbon fiber/ low Density material - Universal Prone Head Support
14	Page 105 Para 11	<b>11 Vacuum cushion-based System:</b> d. Vacuum Cushion Body Support 200x100cm	Pocindia	<b>Vacuum cushion-based System:</b> d. Vacuum Cushion Body Support 200x70cm	<b>11 Vacuum cushion-based System:</b> d. Vacuum Cushion Body Support 200x70cm or more



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