SPECIFICATIONS for SUPPLY, DELIVERY, INSTALLATION, DEMONSTRATION AND COMMISSIONING OF MOBILE C ARM X-RAY UNIT FOR ROBERT MANGALISO SOBUKWE HOSPITAL (x2) IN KIMBERLEY

	SPECIFICATIONS	OFFER	COMPLY Y/N
	The system must be able to perform a wide range of applications in the operating room e.g. orthopedic exams, pain management, cholangiograms and urology.		
	The system must consists of ➢ mobile C-arm stand ➢ footswitch for hands free and sterile control of X-ray ➢ hand switch ➢ Radiation indicator. ➢ Mobile view station with 2 monitors, for image processing, review, archiving and display. ➢ Lockable system. So that it can only be to only used and switch on when unlocked by the user only. ➢ DAP meter must be included		
	Image handling has to be controlled via C-arm stand and Mobile View Station.		
1	**GENERATOR**		
1.1	The generator of the unit must be high frequency type		
1.2	Maximum generator output must be ≥ 5 kW. Please state kW		
1.3	Maximum X RAY tube voltage must be ≥ 120kV. Please state kV		
1.4	Maximum X ray tube current ≥ 40mA. Please state mA		
1.5	The system must have a support of 10 MA fluoroscopy settings. state the mA		
2	**X RAY MODES**		
	The unit must have the following X Ray modes: I) Continuous high definitions fluoroscopy II) Pulsed fluoroscopy III) Continuous low dose Fluoroscopy IV) Radiography		
2.1	Last image hold must be possible with all fluoroscopy modes		
2.2	The unit must have kV range for continuous and pulsed fluoroscopy and radiography mode ≥ 40 – 110kV. State kV range		

2.3	mA Range for low dose and pulsed fluoroscopy should b e ≥ 0.10 to 3.00 mA. State		
2.4	mA Range for high definition fluoroscopy be ≥ 0.24 to 7.2 mA. State		
2.5	Pulse width for pulsed fluoroscopy ≥ 40ms. State		
2.6	Pulse rates for pulsed fluoroscopy ≥ 12.5pulses/second. State		
2.7	mA Range for radiography ≥ 20 mA. State		
2.8	mAs Range for radiography ≥ 2 – 80mAS. State		
3	**X RAY TUBE /TANK UNIT**		
3.1	Must be fixed Anode/rotating tube: State the type of tube offered		
3.2	Nominal focal spot sizes must be at least 0.6 and 1.4mm. State focal spot sizes		
3.3	Nominal X-ray tube voltage must be ≥ 40 - 120kV.State		
3.4	Maximum anode heat content must be ≥ 50kHU		
3.5	Inherent filtration ≥ 3.0 must Al equivalents. State		
3.6	Additional filtration ≥ 1 mm Al + 0.1 mm Cu. State		
3.7	The anode heat dispensation rate to be at least 300W. State cooling rate		
3.8	Automatic tube protection should be included		
3.9	Digital radiography 0.2mA to 12.2mA		
4	**COLLIMATER UNIT**		
4.1	System must have a) iris collimator b) lead shutters		
4.2	Iris collimator must consist of Circular opening, lead iris leaves		
4.3	The lead shutters must consist of 2 movable real lead shutters with steel wedge tip. Rotation of 360 degrees must be possible		
4.4	Collimation on Last image Hold must be possible		
5	**IMAGE INTENSIFIER**		
5.1	Image intensifier size ≥ 23cm (9"): State size of image intensifier		
5.2	Image intensifier must have the following formats 23/17/14 cm: State formats		
5.3	The Input screen must be Cesium Iodine		
5.4	A compact rotatable CCD TV camera with a Anamorphic lens system is mandatory.		
5.5	The resolution of the CCD camera must be 1mega pixel, 12 bit , 1024 x 1024 matrix		
5.6	The unit must have a circular grid with a ratio of 10:1, carbon-fibred anti scatter , 60lp/cm		
5.7	TV camera rotation on Last Image Hold must be possible.		
6	**MOBILE VIEW STATION**		
6.1	View station designed must accommodate two monitors.		
6.2	View station must be design to integrate Video Cassette Recorder/Video CD/DVD Recorder, Paper/transparent printer, DICOM 3.0 workflow interface unit and be able to print film		
	Linked to the existing PACS system		
6.3	2 x TV Monitors must consist of extra high resolution (diagnostic image quality), high contrast, 17"screen size, TFT technology, two mega pixel resolution (Radiation board requirements).		

6.4	The system must be flicker-free monitor display.		
7	**IMAGE STORAGE AND PROCCESSING**		
7.1	Digital Image Processor type must be dedicated 12 bit video pipeline processor.		
7.2	Dynamic movement detection to reduce motion blurring must be included in offer		
7.3	Image storage capacity and max. Storage rate 100 000 images and more. (@ 3 frames/s) on hard disk Hard drive of 80GB		
7.4	The following Image processing must be possible : Edge enhancement (sharpness), Windowing (real-time), Recursive noise reduction, Movement detection, Mosaic, Replay, Zoom, image rotation Annotation and Video invert.		
7.5	The displayed image must be capable of being rotated without the use of x-ray radiation through 360 degrees.		
	Digital image storage		
	Dicom storage send : Dicom 3 interface for image data communication in a PACS based on the Dicom 3 standard		
	System must be able to send receive, and store images		
	Dicom print For printing within the network on a dicom – compatible printer in the department.		
8	**C ARM STAND/GEOMETRY**		
8.1	**RANGE OF MOVEMENTS AND ANGULATIONS**		
8.1.1	Longitudinal movement ≥ 200mm. State		
8.1.2	Swivel range +/- 10 º. State		
8.1.3	Motorized Vertical movement upwards - 420 mm Downwards – 80 mm		
8.1.4	Rotation ≥ ± 180°, State		
8.1.5	Angulation (orbital movement) ≥ +90°, -25°. State		
8.1.6	Source to image distance : 995 mm. State		
8.1.7	C-arc depth must be at least ≥ 630mm		
8.2	Precise positioning and easy steering through rear Wheel steering must be possible.		
8.3	Dedicated parallel movement with ergonomically designed handgrips for easy positioning alongside Operating table must be included.		
8.4	The unit must have cable deflectors at the wheels		
8.5	The unit must have brakes for all C arm unit movements.		
8.6	Power supply: 220V, 50Hz, single phased and earthed mains supply. State		
8.7	C-arm unit must provide real-time feedback on the actual dose usage and the effects of collimation and field of View on dose.		
8.8	A quantitative dose report after exams for recordkeeping is mandatory, and has to be included. Explain.		
9	**THERMAL PRINTER**		
9.1	Thermal printer for cost-effective printing of video images from the live monitor onto paper must be included. The printer must be integrated into the mobile monitor stand.		
9.2	Multiformat 1, 2, 4, 6 images to be printed on one page in both		

	landscape and portrait format must be possible.		
10	**ACCESSORIES**		
10.1	The following accessories should be included in the main system. Fluoroscopy foot switch Cassette holder DVD/CD writer Sterilizable covers with clamps Radiography hand switch Hook to hang 3 lead aprons Three 0.5mm lead aprons Lead shield with stand Network point.		
11	**DICOM FUNCTIONALITY**		
11.1	C arm unit have to be DICOM enabled		
11.2	The following DICOM packages have to be included in offer: ➢ DICOM PRINT ➢ DICOM STORE ➢ MODALITY WORKLIST MANAGEMENT ➢ MODALITY PERFORMED PROCEDURE STEP ➢ STORAGE COMMIT ➢ The unit must be linked to the existing PACS system ➢ Must be able to send the images to the existing Mini PACS storage.		
11.3	Install network in theatre		
12	**TRAINING**		
	The successful tenderers will be responsible for sufficient training of the radiographers The training must consist of: One week training session prior to installation at a site where the specific model tendered for is in operation		
13	**WARRANTY PERIOD**		
13.1	Bidders must supply a twenty four month guarantee against poor workmanship and latent defects and parts. This must be all inclusive and include, BUT NOT LIMITED TO, amongst others, ALL PARTS (including, where appropriate, Consumables, X-Ray tubes, detector other glassware), labor, travelling and accommodation		
13.2	The annual quality assurance and preventative maintenance for compliance must be included		
14	**DELIVERY AND INSTALLATION**		
14.1	The delivery and installation time must not be later than 12-14 weeks after receiving order		
14.2	The equipment and accessories ordered shall be delivered, installed, tested and commissioned at Tenderisers' expense prior to acceptance		
15	**GENERAL**		
15.1	The equipment/system must be approved and licensed by Radiation Control		
15.2	A copy of a valid license issued in terms of the Hazardous Substance Act, Act No 15 of 1973 must be submitted with the tender. Failure to submit such a valid license may result in a tender not being considered		

15.3	A copy of the valid license issued by Department of health for medical monitors as a medical device for import.		
15.4	The tenderer must communicate to the company that has installed the PACS and RIS.		
15.5	It will be on the tenderers cost to get the abovementioned company for the connection.		
15.6	The latest model machine must be offered - state date of initial manufacture of the model range offered		
15.7	Supply details of reference sites where similar equipment is currently in operation in RSA or elsewhere		
15.8	Name of Institution		
	Contact Person		
	Telephone / Fax Number		
16	**MAINTENANCE PLAN**		
16.1	Fully 5 year comprehensive preventative maintenance, service and repair plan including all costs must be included. Software updates and upgrades to be included This maintenance must also include the printer , x-ray tube, generator, ,others)		
16.2	No part shall be second hand or refurbished		
16.3	The annual quality assurance must be included in the maintenance contract.		
16.4	The annual QC tests must be done and submitted to Radiation Board on time		
16.5	The two year guarantee must be included in the unit price of the equipment. The purchase pricing schedule must be completed in full		
16.6	Call out time of 24 hours or less; response time less than 24 hour		
16.7	Spare parts must be available within at the most three working day –State how that will be achieved		
16.8	The up-time of the unit must be better than 98%, excluding scheduled preventative maintenance and software upgrades, measured on a quarterly basis. The percentage lower than 98% will be added to the warranty period. A sliding scale penalty clause will form part of the service contract. This will result in the maintenance payment being reduced by a pro rata amount that the up-time is less than 98%.		
16.9	Up-Time is defined as follows: 24/7; i.e. 365days times 24 hours = 8760 Hours. A down time of 1% relates to 175 hours per annum		
16.10	A response time of 30 mins of the call being made during normal working hours will be assured .Physical inspection will be within 8 working hours		
16.11	Spare parts must be guaranteed available for the specified life of the equipment, with a minimum of ten years		
16.12	It must be guaranteed that no additional equipment, parts or software, excluding consumables, is required to operate the equipment specified in this tender. Specify any consumables required		
16.13	The guarantee must include tubes for usage, all equipment in the tender document, all materials used and all workmanship		
16.14	The guarantee must include services performed on all the equipment in the tender document		
16.15	Spares and travelling time cost to be included in the guarantee		

16.16	Qualified technicians, who specialise in the above mentioned system, must be immediately available to carry out the necessary services. State how many trained technicians are available?		
16.17	The Department will not be held responsible for overtime travel and labor fees for fault-finding		
16.18	The Department will not be held responsible for overtime travel and labor fees for repairing		
16.19	The contract shall include a means of remote diagnostic State current cost of servicing equipment:		
	Rate per hour		
	Travelling time		
	Rate per km		

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