CLIENT NAME:

TAPAN MUKESHBHAI PATEL MEMORIAL HOSPITAL , MEDICAL COLLEGE AND RESEARCH CENTER, SHIRPUR

RADIOLOGY TENDER

TENDER DOCUMENT:

SVKM/TMPMH/OPG/009

SECTION 2 – SPECIFICATIONS

Digital Panoramic (O.P.G.) and Cephalometric Extra oral X-Ray Machine

1	**TECHNOLOGY**
a	Direct and instant image acquisition. "One Shot for cep & Scanning technology for Pan mode
2	**MACHINE PARAMETERS**
a	X-ray Generator: should be good enough to generate good and acceptable quality of image with low patient dose
b	Focal spot is 0.5 mm according to IEC 336/1993 specifications
c	Tube current: 3 mA to 16 mA (1 mA steps).
d	Tube voltage : 60 kV to 90 kV
e	Magnification factor in Pan: as minimum as compared to real image (1-1.3)
f	Magnification in Ceph: as minimum as compared to real image (1-1.2)
g	Inherent filtration: 2.5-3.5mm Al equivalent (84 kV).
h	Collimation: should be automatic
i	Exposure Time: 0.1 to 3.2 seconds, 0.2 Magnification x 1.15
j	Effective dose: As low as diagnostically achievable
k	control panel on board: should be touch screen, easy to use
3	**RESULTANT IMAGE SPECIFICATION**
a	Digital Sensor: can be of CCD or CMOS sensor with protective optical fiber plate. But it should not need to change sensor from pan to ceph. It Should be provided individual for both. Sensor quality must be good enough to capture good resolution & sharpness of image with below mentioned acquisition format size
b	Grey Scale Level: > or equal to 12 bits (higher bits are more preferable)
c	Pixel Size: < 90 microns/mm (with good quality of image, sharpness, contrast, resolution and less noise that may be finally decided by demonstration and machine performance)
4	**IMAGE AQUSITION TIME**
a	Image Scan time for panoramic: 12-18 sec
b	Image scan time for ceph: may vary according to acquisition format size ranging from 5-15 secs
5	**IMAGE ACQUISITION FORMAT SIZE**
a	Panoramic: Should include all standard panoramic details including orbit, maxilla, mandible, bilateral TMJs and surrounding bone structures, spines. Up to 8*10 cm
b	CEPH: Should include whole skull including frontal head, vertex, maxilla and mandible, occipital region, spines and other supporting structures. (up to 24*30 cm)
6	**PANORAMIC PROJECTIONS**
a	Standard Panoramic projection

b	Child Projection.
c	Orthogonal projections
d	All views of Temporomandibular Joints (Open, Closed & lateral, biaxial, etc.)
e	All projection without spinal cord interference.

f	Sinus projection
7	CEPHALOMETRIC MODES
a	Lateral view & Oblique View, AP/PA Skull view
b	Submento-vertex view, Carpal view, Paranasal sinus (Water's View)
8	PATIENT POSITIONING:
	Patient should be stable during exposure with all necessary stabilization part for ear,
9	IMAGE PROGRAMMING :- COMPUTER-CONTROLLED INTERFACE
	Post images processing is done within the digital imaging program in condition to
	Software should be able to automatically recognize and trace anatomical structures
1	IMAGE SOFTWARE SPECIFICATIONS:
a	Software should be user friendly
	Enable to work with all market available digital laser printer & DICOM embedded
c	Free installation of upgradable software versions
d	Service of machine and software should be faster and available in 24 hours
e	Multi license software should be provided for ease of work
	DICOM images must be transferred to CD, mobile or other transferrable data and
1	COMPUTER WORK STATION SPECIFICATION:
	Computer CPU with 4 GB or more DDR3 RAM with maximum storage capacity of Hard
b	Processor: Intel core i3 or above with Intel motherboard with 5-6 USB ports
	Software: Genuine certified Windows upgradable to windows 7 to windows 8 and
d	CD & DVD writer should be provided
	Motherboard should be enabled to connect net facility with hi speed internal LAN
f	Internal Graphics card for better Image resolution
g	LCD Monitor 21" screen
h	Optical mouse and Keyboard
1	PRINTER SPECIFICATION:
	DICOM embedded printer for Printing image feasible on all type and size of paper
1	OVERALL EXPECTATIONS & REQUIREMENTS OF MACHINE & SOFTWARE
	Machine & software should be user friendly and not time consuming or difficult to
b	Machine should be AERB Type Approved or NOC Approved, US FDI and CE approved
	Machine should fulfill all panoramic and Cephalometric images to be captured along
d	Machine Demo with performance & resultant image will be more conclusive at the end with respective to low patient dose, ease of operation, compatibility with printer and user friendly software