DEPARTMENT OF RADIOLOGY & IMAGING
AIIMS, BHOPAL

No. 23/Radio/AllIMS/2013

Bhopal, Dated: 24/10/2013

To,

The Chairman,
Purchase Committee,
AIIMS, Bhopal.

Subject:- Pre bid meeting held on 18/10/2013. Item Nos. 1 to 6

In reference to above Item Nos. the objections/suggestions raised in the pre bid meeting and the necessary corrigendum is enclosed along-with.

Also there is an amendment in Item No 4 – 3D-4D Colour Doppler high resolution USG machine – 1 No. – Complete specifications were not loaded earlier. The specifications are to be read as enclosed below. Please upload the complete specifications.

Enclosed:

(Dr. Rajesh Malik)
Prof. & Head
Deptt. of Radiodiagnosis & Imaging
AIIMS, Bhopal
## For Item No. 05, Multiloading Computed Radiography System – CR System

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Given Specifications</th>
<th>Objection raised by AGFA Healthcare</th>
<th>Corrigendum</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Latest CR System compatible with standard X-ray machine consisting of digitizer patient identification system. Preview and processing server with workstations. Multiloading CR system should have following essential features.</td>
<td>Yes for an institute like AllMS we suggest that Mammography compatible CR is ideal where the workload is also immense and as in near future the dept. will be requiring a Mammo X-ray machine so Mammo CR will be most compatible. We suggest foll sizes 18x24-2 24x30-2</td>
<td>Latest CR System – Mammography ready, compatible with standard X-ray machine/ mammography machine, consisting of digitizer, patient identification system. Preview and processing server with workstations. Multiloading CR system should have following essential features. Add following mammography cassettes: 24x30 – 2 Nos.</td>
</tr>
<tr>
<td>2.</td>
<td>Image reading (CR reader)/Digitizer</td>
<td>The Cassettes and IP are rigid type for better resistance against dust, roller marks etc. Needle image plates offer low DQE and radiation dose on the patient also it gives DR like image.</td>
<td>No Change.</td>
</tr>
<tr>
<td>3.</td>
<td>It should have an input and output cassette buffer/stacker for multiple cassettes</td>
<td>For high throughput at least 4 cassettes buffer to be considered which will increase the work efficiency.</td>
<td>No Change.</td>
</tr>
<tr>
<td>4.</td>
<td>Server and workstation with 17&quot; LCD monitor for centralized patient study management</td>
<td>As 19&quot;LCD monitor is the largest size with high resolution particularly for mammo applications Clinical grade monitor is a DICOM GSDF which increases the camera pixel density accordingly to incoming image from the digitizer and also has a wider view angle.</td>
<td>Server and workstation with 17” or more LCD monitor – Medical /Clinical grade, for centralized patient study management</td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td>As Mammography needs a 20 pixels/mm resolution which is mandatory its being provided by US FDA /CE approved</td>
<td>No Change.</td>
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</table>
For Item 01, 800mA X-ray Machine (80KW)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Given Specifications</th>
<th>Objection raised by Allengers Medical Systems Ltd.</th>
<th>Corrigendum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>X-Ray Generator</td>
<td>Fluoro mA Range – 1 to 3mA in steps of 0.1mA</td>
<td>Fluoro mA range – 1 to 3mA in steps of 0.1 mA</td>
</tr>
<tr>
<td></td>
<td>Fluoro mA Range - 1 to 3mA in steps of 0.1mA</td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td>There is nothing mentioned about requirement of vertical bucky</td>
<td>Vertical bucky stand to bequoted as Standard. Vertical bucky stand with oscillating grid Motorised movement of bucky up and down with stainless steel cassette tray. Tilttable bucky – mention the angle of tilt. Bucky stand floor mounted to accommodate cassettes of all sizes. Chest stand to be provided for chest radiographs, preferably mountable/dismountable on the vertical bucky stand.</td>
<td></td>
</tr>
</tbody>
</table>

For Item 01, 800mA X-ray Machine

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Given Specifications</th>
<th>Objection raised by Prognosys Medical Systems Pvt. Ltd.</th>
<th>Corrigendum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The recent technology of High Frequency Generators are inverter/microprocessor controlled <strong>Suggested Specifications</strong> Point to be added: The High Frequency Generator to be microprocessor controlled/inverter technology</td>
<td>X-ray generator – 800mA or more, 80kw high frequency, microprocessor controlled.</td>
<td></td>
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<td></td>
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<td>2.</td>
<td>A very compact H.V. Tank filled with high dielectric transformer oil.</td>
<td>The HV Tank used tube cooling is an old technology. <strong>Suggested Specifications</strong> –</td>
<td>Point deleted.</td>
</tr>
</tbody>
</table>
### Item No. 2 - Equipment Name: Mobile X-ray Unit 15 KW

<table>
<thead>
<tr>
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<th>Objection raised by Prognosys Medical Systems Pvt. Ltd.</th>
<th>Corrigendum</th>
</tr>
</thead>
</table>
| 1.    | Dual Focus 0.3/0.6 mm tube | We suggest not to mention the focal spot size to have wider participation  
Suggested Specifications: Dual Focus Tube | Tube head rotating Anode Xray Tube, Dual Focus Self contained Tube Head. Tube head can be tilted 360 degree with full flexibility for use in operation theatres and in ward for bedside radiography. |

### Item No. 6 - Equipment Name: C ARM Image Intensifier

<table>
<thead>
<tr>
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<th>Objection raised by Prognosys Medical Systems Pvt. Ltd.</th>
<th>Corrigendum</th>
</tr>
</thead>
</table>
| 1.    | Fluoroscopic mA: 0.1-4mA (Normal Mode) | We suggest the change for wider participation  
Suggested Specifications: Fluoroscopic mA: 0.2-4mA (Normal Mode) | Fluoroscopic mA : 0.1/0.2 to 4mA (normal mode) |
| 2.    | Fluoro mA from 0.1-4mA, continuously variable | We suggest the change for wider participation  
Suggested Specifications: Fluoro mA from 0.2-4mA, continuously variable | Fluoro mA from 0.1/0.2-4mA, continuously variable |
Amendment in Item No. 4

3D-4D Colour Doppler high resolution USG machine – 1 No. – The specifications are to be read as under:

These are broad specifications the companies should quote with their latest model and comparable technologies. Major or minor deviations from the specifications given below will be evaluated by technical committee for keeping the specific equipment in one category which broadly meets the requirement.

Demonstration has to be arranged by the company before the price bid opening at their own cost for their quoted models to the technical committee

- The system should be State of the art with full Digital Technology with Broadband beamformer & should be for Whole Body applications including Abdominal, Ob/Gyn, Cardiac, Cerebrovascular, Peripheral Vascular, Musculoskeletal, Transcranial & Small Parts Imaging such as Breast, Thyroid, Testes, Intracavitary applications like Transvaginal & Transrectal, & Intraoperative applications. System should have the capability of Elastography and contrast imaging.

- The broadband beamformer should be capable of simultaneously processing ultrasound signals from 1 MHz to 17 MHz.

- The system should incorporate facility for High-resolution 2D, M Mode, PW, CW, Colour Flow Imaging, Power Doppler Angio, Duplex, Triplex Imaging modes. Should be capable of Dual Live display of grayscale reference image with colour Doppler image

- The equipment should have minimum 50,000 Digital Channels or more, and should be upgradable on the site to higher number of Channels. Higher Number of Channels is preferred.

- The system should employ the state of the art Transmit Real Time Compound Imaging Technology with Multiple transmitted lines of sight of at least 9 lines, wherein Multiple Coplanar Images from different viewing angles are obtained and combined into a single compound Image at real-time frame rates for improved visualization & better Image quality in Abdominal & Vascular Imaging & to virtually clean up the Image of artifacts.

- System should have advanced Image Processing algorithms to analyse between targets and artifacts so as to sharpen target anatomy and reduce the speckle & artifacts for improved Image quality.

- The system should have 256 Greyshades or more.

- The system should offer a scan depth up to 30cm.
• The system shall have at least three universal transducer ports with electronic switching capability allowing any transducer to be connected to any port.

• The system should support Convex, Linear, Sector, Volume, Matrix Array and static transducers. It should support volume imaging by freehand, mechanical, and electronic methods.

• The system should support multiple fully sampled Live Volume Imaging, for both adult and paediatric imaging.

• All transducers should have Broad Bandwidth technology for extreme High Resolution 2D Imaging. The system should be able to capture all frequencies in a single Probe, without the need for user selection.

• The system should have a high dynamic range of 160 dB or more.

• The system should have facility for zoom (real-time and frozen image) and manipulation of image through pre processing and post processing with Cine loop viewing of images of all modes.

• System should have Cine loop review facility in individual and mixed modes with memory up to minimum of 2000 images and 100 seconds of M Mode data.

• The system should offer a very high frame rate up to 500 frames per second. The system shall be able to perform mechanical 4D acquisitions at 30 Volumes per second. Please specify.

• There should not be any reduction or change in pulsed Doppler PRF scale when moving between Duplex pulsed wave Doppler and simultaneous/triple modes. Also, system should offer automatic single button optimization of Doppler baseline and scale.

• The system should have Harmonic Imaging for Tissues for hard to image patients. The system shall support Tissue Harmonic Imaging capability on phased, linear, 3D and curved array transducers. Tissue Harmonic Imaging should be available in colour flow imaging, M-Mode, and 3D rendering modes.

• System should be able to work in combined mode of Harmonic Imaging and Real-time Compound Imaging to get excellent Image quality. The system shall offer Tissue Harmonic Imaging in Power Doppler imaging mode for improved sensitivity and specificity in differentiating blood/agent from tissue.

• The system should have Contrast Harmonic Imaging and should have optimization settings to detect the Contrast Agents. Please specify other advanced Technologies to perform better Contrast Harmonic Imaging.
• System should offer real-time extended field of view imaging (panoramic imaging) up to 100 cm with curved and linear transducers. All grayscale imaging must be capable of real-time spatial compounding during the panoramic imaging.

• The system shall quantitatively calibrate panoramic images, allowing the user to perform area, circumference, distance and curved-linear distance measurements.

• The system shall support simultaneous display of volume and multiplanar reconstructed (MPR) views.

• The system should have the in-built software tool for imaging MPR, Thick Slice, and slice plane views

• The system shall support full screen display of all 3D views including individual X, Y, Z MPR views and simultaneous display of thumbnail views on the same system display monitor.

• Full Trim capability must be supported: Oblique and linear trimming in the MPRs; Freehand trimming of the volume.

• The system should support a utility for the creation of user-defined general imaging protocols and the editing of default general imaging protocols.

• Preset controls shall include abdominal, carotid, lower extremity venous and gynaecological exam guides that follow industry and accreditation guidelines.

• The system should have automatic real-time quantification of Doppler parameters like velocity, frequency, time, heart rate, slope, flow volume, pulsatility index, resistivity index, peak velocity, average value, point value, area and diameter flow volume, etc.

• The system should provide extensive measurement, calculation and analysis packages for Abdominal (General, Vascular, Renal), Small Parts (Thyroid, Testicle, Breast), Ob/Gyn, Cardiology etc.,

• The system should support Intima Media Thickness (IMT) Quantification with automatic or user assisted tracing of intima-media complex and the calculation and display of mean and standard deviation IMT based spatial average of intima-media distances from each scan line.

• The system should provide automated, real-time analysis of peak and mean Doppler spectral waveforms.

• The system should have a flicker free high resolution TFT Flat panel display of a minimum of 20 inch with four way articulation with a provision to adjust the height.

• System should have Fully Articulating Control Panel including Height, swivel & slide adjustments. Should have a full alphanumeric keyboard with illuminated keys and status display.
The system should have a fast Boot up time of less than 150 seconds, which switched on from ‘OFF’ position, and also less than 60 seconds from ‘STANDBY’ position.

The system should have digital storage (atleast 1 TB built-in hard disc) and retrieval of B/w & Colour image data (both frozen and cine loops) on built-in as well as removable media (CD, DVD & Magneto optical Disk). System must be able to export JPG and AVI file formats.

The system should be DICOM 3.0 ready with a facility for structured reporting for OB, GYN, and vascular data.

**ELASTOGRAPHY**
System shall be equipped to perform elasticity imaging using latest available technology in a variety of application (liver, breast, prostate) and on a variety of transducers (convex, linear and endocavitary) accompanied by necessary quantification package software.

One touch entry into elastography mode. Elastogram applied as a region of interest box with user control of size and location through entire field of view. Realtime indicator for elastogram quality. Single screen 2D with elastogram and side-by-side display of 2D image and 2D with elastogram.

Shadow duplication and measurement capability in side-by-side display. Distance and area tools. Acquisition rate control for elastogram optimization. Elastogram optimization settings to optimize to different tissue compositions.

The System should be capable of FUSION IMAGING. i.e., Fusion of Ultrasound Images with CT, MRI, PET CT with Needle tracking system, Auto Registration, Motion artifact Eliminator.

**Equipment with above features to be offered with the following Broad Bandwidth Probes**
- Broadband Convex Array Transducer 2-5MHz without need for frequency switching
- Broadband Linear Transducer 5-17MHz without need for frequency switching
- Broad Band Transvaginal / Transrectal Probe with frequency range between 5 to 9 MHz
- Broadband Volume Transducer 2-6MHz without need for frequency switching for 4D Applications.

The system should have the following Documentation Devices:

1. Black & White Thermal Printer with 10 printer rolls.
2. On-Line UPS of appropriate rating from a reputed brand
3. Colour Laser Printer
4. Latest computer system with at least 1 Tb hard disc and 2 GB RAM for image storage/Transfer and reporting. 1000 DVDs for data storage.

**WARRANTY:**

The complete system including the machine, equipments & all accessories including computer system, AC to be under warranty for 5 years. Thereafter, a comprehensive maintenance contract (including repair/replacement of the parts) of the complete system, all accessories, computers and printers and all other items supplied/installated should be offered for 5 years.
During warranty/ AMC period all breakdowns must be attended to within 24 hours and repairs completed within 72 hours of reporting.

DOWN TIME:

a. Maximum acceptable down time of equipment during the warranty period/AMC should not exceed five percent, calculated separately for each year.
b. If the down time exceeds the level, then the warranty period / AMC to be extended by twice the period of downtime exceeding 5%.

RESPONSIBILITIES:

During the period of warranty/ comprehensive maintenance contract, the following will be the responsibilities of the firm.
a. Maintenance and replacement of the batteries of the UPS as and when necessary.
b. To provide/ refill replace cartridge used for the printer supplied.
c. Up-gradation of software of main equipment, workstation, servers and supplied computers.