

**GOVERNMENT OF ASSAM
OFFICE OF THE DIRECTOR OF MEDICAL EDUCATION, ASSAM
SIXMILE, KHANAPARA, GUWAHATI-22**

No. DME/240/2005/Pt.I/12,056

Dated: 20-08-2010.

CORRIGENDUM.

Some of the Technical specifications of Radiology group published vide earlier IFB No.DME/240/2005/Pt.I/10461, dated 09-07-2010 has been modified and to be read as follows:

i) 500 MA DIAGNOSTIC X -RAY MACHINE

A.	Generator:
1	Generator should be high frequency/inverter type for constant output.
2	Output 50-60 KW or more.
3	KV range 40 KV – 120 KV.
4	Output at 80 KV should be 500 mA or more.
5	It should have automatic exposure control device.
6	It should have digital display of KV & mAs.
7	Anatomical programming radiography should be possible.
8	It should have over loading protection.
B.	X – Ray Tube and Collimator:
1	The x-ray tube should be rotating anode high speed, compatible with the generator and must have dual focus. Focal spots of following sizes: Large Focus: 1.2/2.0 mm or less output at 75 KW or more. Small Focus: 0.6/1.0 mm or less with output at 27 KW or more. Tube with anode heat storage capacity 200 KHU or more.
2	Motorized collimator having additional filters (for Dose Reduction) and auto shut provision for the light.
C.	Ceiling Suspended 3D Column Stand:
1	It should be ceiling suspended.
2	It should have movements in all directions i.e. 3D Transverse 200 cm or more, Longitudinal 300 cm or more (up and downward i.e. vertical 150 cm or more).
3	It should have electromagnetic brakes with fully counter balanced mechanism.
4	It should have facility to display FFD/SID.
5	It should have provision of auto centering with table bucky centering.
6	Tube rotation at vertical axis and horizontal axis +180 degree.
7	The generator, x-ray tube and CS 3 D column stand should be from a reputed manufacturer.
D.	X – Ray Table:
1	Horizontal table with floating table top.
2	It should have transverse ± 10 cm or more and longitudinal movements ± 25 cm or more with electromagnetic brakes.
3	It should have height adjustments facilities.
4	It should have flat top of carbon fibre.
5	It should be provided with bucky which can hold all standard sizes of cassettes upto 14"x17".
6	Bucky should have a grid ratio 12:1 or more with 40 lines per cm.
E.	Vertical Bucky Stand:
1	The unit should be provided with tiltable vertical bucky.
2	It should have provision to do chest radiography without grid.
F.	Essential Accessories: The following essential accessories to be provided with the unit.
1	Voltage stabilizer of required capacity, the capacity and make of the voltage stabilizer should be specified.
2	Lateral cassette holder – One.
G.	Optional:
	i) Auto collimation according to SID and size of the inserted cassette. ii) Provision of display of exposure selection parameter both at console

	and collimator.
H.	Warranty:
	Warranty of 60 months of all parts as well as accessories and auxiliary units supplied with the main equipment.
I.	C.M.C.:
	C.M.C. for 3 years for whole equipment and all accessories supplied with the unit as well as A.C.

Environmental factors

- 1 Shall meet IEC-60601-1-2 :2001(Or Equivalent BIS) General requirements of Safety for Electromagnetic Compatibility. or should comply with 89/366/EEC; EMC-directive.
- 2 The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90%
- 3 The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%

Power Supply

- 1 Power input to be 220-240VAC, 50Hz fitted with Indian plug
- 2 UPS of suitable rating with voltage regulation and spike protection for 60 minutes back up.

Standards, Safety and Training

- 1 Should be FDA, CE, AERB type approved
- 2 Manufacturer should be ISO certified for quality standards.
- 3 Electrical safety conforms to standards for electrical safety IEC-60601 / IS-13450
- 4 Should comply with ATS/ ECCS Guidelines.
- 5 Should have local service facility .The service provider should have the necessary equipments recommended by the manufacturer to carry out preventive maintenance test as per guidelines provided in the service/ maintenance manual.

Documentation

- 1 User/Technical/Maintenance manuals to be supplied in English.
- 2 Certificate of calibration and inspection.
- 3 List of Equipments available for providing calibration and routine Preventive Maintenance Support. as per manufacturer documentation in service/technical manual.
- 4 List of important spare parts and accessories with their part number and costing.
- 5 Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.

Calculation of uptime

Uptime is 95% minus the percentage of time the equipment is unused.

The equipment is deemed unusable from the time it is reported until it is back in full use

The period used for the calculation shall be three calendar months

Scheduled service will not be considered as down time

Breakages caused by negligence of the user shall not be considered as down time.

Where equipment have multiple functions the down time may be weighted according to mutually agreed norms. However once repair starts the equipment is down.

Penalties during warranty period

Percentage Uptime(%)	Penalty
95 and better	No penalty
90 to 95	One week added to warranty for every period in this category
85 to 90	Two weeks added every time
75 to 85	Three weeks added every time
Less than 75	The equipment must be replaced if this happens even once.

ii) 800MA DIAGNOSTIC X-RAY MACHINE

A.	Generator:
1	Generator should be high frequency/inverter type for constant output.
2	Output 80 KW or more.
3	KV range 40 KV – 150 KV.
4	Output at 100 KV should be 800 mA or more.
5	It should have automatic exposure control device.
6	It should have digital display of KV & mAs.
7	Anatomical programming radiography should be possible.
8	It should have over loading protection.
B.	X – Ray Tube and Collimator:
1	The x-ray tube should be rotating anode high speed, compatible with the generator and must have dual focus. Focal spots of following sizes: Large Focus: 1.2/2.0 mm or less output at 80 KW or more. Small Focus: 0.6/1.0 mm or less with output at 30 KW or more. Tube with anode heat storage capacity 300 KHU or more.
2	Motorized collimator having additional filters (for Dose Reduction) and auto shut provision for the light.
C.	Ceiling Suspended 3D Column Stand:
1	It should be ceiling suspended.
2	It should have movements in all directions i.e. 3D Transverse 200 cm or more, Longitudinal 300 cm or more (up and downward i.e. vertical 150 cm or more).
3	It should have electromagnetic brakes with fully counter balanced mechanism.
4	It should have facility to display FFD/SID.
5	It should have provision of auto centering with table bucky centering.
6	Tube rotation at vertical axis and horizontal axis +180 degree.
7	The generator, x-ray tube and CS 3 D column stand should be from a reputed manufacturer.
D.	X – Ray Table:
1	Horizontal table with floating table top.
2	It should have transverse ± 10 cm or more and longitudinal movements ± 25 cm or more with electromagnetic brakes.
3	It should have height adjustments facilities.
4	It should have flat top of carbon fibre.
5	It should be provided with bucky which can hold all standard sizes of cassettes upto 14"x17".
6	Bucky should have a grid ratio 12:1 or more with 40 lines per cm.
E.	Vertical Bucky Stand:
1	The unit should be provided with tiltable vertical bucky.
2	It should have provision to do chest radiography without grid.
F.	Essential Accessories: The following essential accessories to be provided with the unit.
1	Voltage stabilizer of required capacity, the capacity and make of the voltage stabilizer should be specified.
2	Lateral cassette holder – One.
G.	Optional:
	i) Auto collimation according to SID and size of the inserted cassette. ii) Provision of display of exposure selection parameter both at console and collimator.
H.	Warranty:
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I.	C.M.C.:
	C.M.C. for 3 years for whole equipment and all accessories supplied with the unit as well as A.C.

Environmental factors

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89/366/EEC; EMC-directive.

2 The unit shall be capable of being stored continuously in ambient temperature of 0 -50 deg C and relative humidity of 15-90%

3 The unit shall be capable of operating continuously in ambient temperature of 10 -40deg C and relative humidity of 15-90%

Power Supply

1 Power input to be 220-240VAC, 50Hz fitted with Indian plug

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Standards, Safety and Training

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Where equipment have multiple functions the down time may be weighted according to mutually agreed norms. However once repair starts the equipment is down.

Penalties during warranty period

Percentage Uptime(%)

Penalty

95 and better

No penalty

90 to 95

One week added to warranty for every period in this category

85 to 90

Two weeks added every time

75 to 85

Three weeks added every time

Less than 75

The equipment must be replaced if this happens even once.

iii) MAMMOGRAPHY-ANALOG SYSTEM

X-ray generator

Microprocessor-controlled high-frequency generator (20 kHz)	
Power output (IEC 601)	5 kW
kV range	23 kV to 35 kV
mAs range: Molybdenum anode	2 mAs to 560 mAs in mAs

	mode 0 mAs to 600 mAs in AEC mode
mAs range: Rhodium anode	2 mAs to 710 mAs in mAs mode 0 mAs to 752 mAs in AEC mode
Exposure times, automatic	10 ms to 4 s (large focus) 10 ms to 7 s (small focus)
Exposure times, manual	13 ms to 4 s (large focus) 70 ms to 7 s (small focus)

X-ray stand

Height adjustment (motorized)	65 cm to 135 cm
Swivel range (motorized)	+135° to -180°
Source-to-Image Distance (SID)	65 cm
Compression	3 kg (6.5 lbs) to 20 kg (44 lbs)
Grid	Reciprocating, grid ratio 5:1, 31 lines/cm
Magnification factors*	1.5 or 1.8, geometric
Radiation shield*	0.1 mm or 0.3 mm lead equivalent lead glass

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95 and better	No penalty
90 to 95	One week added to warranty for every period in this category
85 to 90	Two weeks added every time
75 to 85	Three weeks added every time
Less than 75	The equipment must be replaced if this happens even once.

Warranty 5 years
CMC/AMC 5 years.

IV) PORTABLE ULTRASOUND MACHINE (BLACK & WHITE)

1. The B/W USG machine should have the following applications –
 Abdomen, Obstetrics, Early obstetrics, Obstetrics twins, Gynecology, Small parts
 Musculo Skeletel, Cardiac, Urology, Fetal cardiac, Fetal cranial, Surgical etc.
2. Display Modes: B, B+B, 4B, B+M, B/M, etc.
3. Scan depth: 2cms- 25cms.
4. Facility for Image Magnification, Zoom & scrolling.
5. Display: **9-15** inches, non-interlaced high resolution monitor.
6. Alphanumeric Key- board should be there,
7. Gray Scal : System should have minimum 256 gray levels with system dynamic range to be more than 190 dB.
8. Broadband, light weight, large field of view probes are preferable.
9. Probes:
 - A) 2Hz-5Hz multi frequency convex ergonomically suitable probes.
 - B) 4- 8 MHz TVS/ endorectal/endocavitary probe with FOV minimum 150 degree or more.
10. Exhaustive calculation package should be there for Abdomen, Obstetrics, Urology, Cardiac, Small parts, Pediatric etc.
11. Inbuilt Tissue Harmonic Imaging with all probes, it should not be probe dependent.

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90 to 95	One week added to warranty for every period in this category
85 to 90	Two weeks added every time
75 to 85	Three weeks added every time
Less than 75	The equipment must be replaced if this happens even once.

Warranty – 5 years
CMC/AMC- 3 years

Note: All prospective bidders shall have to demonstrate their product before the expert(s) during the time of technical evaluation. It is therefore advisable to depute some senior most staffs during the time of technical evaluation and at the time of price bid opening, who can reply satisfactorily all the queries of the expert(s) and can take spot decision.

Director of Medical Education, Assam

Memo No. DME/ 240/2005/Pt./12,057-61

Dated: 20 -08-2010.

Copy for forwarded for information & necessary action to:

1. The Commissioner & Secretary to the Govt. of Assam, Health & F.W.(B) Deptt. Dispur, Guwahati.
2. The Mission Director, NRHM, Assam. He is requested kindly to upload the Corrigendum Notice in the NRHM, Assam Website. Soft copy enclosed.
3. The State Informatics Officer, Block F, Assam Secretariat, Dispur, Guwahati-06. He is requested to upload the Corrigendum Notice in the Assam Govt. Website. Soft copy enclosed.
4. The P.S. to the Hon'ble Minister, Health & F.W. Assam for kind appraisal of the Hon'ble Minister.
5. The Notice Board of this Directorate.

Director of Medical Education, Assam