

# Equipment Specifications

## Digital Radiography and Fluoroscopy

[VISN 20/692 – White City]

692-B92008

### A. REQUIREMENT OVERVIEW

This unit will be used for fluoroscopy including gastrointestinal exams, joint injections, and pain management procedures, as well as for standard radiography including extremities, abdominal, spine, and chest X-rays. The unit will include a C-arm and a wall Bucky.

Facility	Quantity
692 - White City	1

### B. TECHNICAL REQUIREMENTS

#### 1. Unit physical specifications

a. Minimum wall detector size [in x in]	17x17
b. Minimum table detector size [in x in]	17x17
c. Minimum detector resolution [lp/mm]	4
d. Maximum detector weight (with battery) [lbs]	7
e. Height range for wall bucky [in]	13.75x73.75
f. Maximum patient weight Static [lbs]	500
g. Maximum patient weight tilt [lbs]	350
h. Minimum table width [cm]	60
i. Minimum table tilt [deg]	-89
j. Maximum table tilt [deg]	89
k. Minimum generator power [kW]	80
l. Radiographic kVp range [kVp]	40-150
m. Radiographic mA range [mA @ kVp]	25-1000
n. Fluoroscopy kVp range [kVp]	40-150
o. Minimum pulse rate [frames/sec]	1
p. Minimum acquisition matrix size	1024x1024
q. Minimum acquisition bit depth	14
r. Minimum spatial resolution [lp/mm]	4
s. Minimum SID range [in]	34.6x 48.4
t. Heat unit x-ray tubes [kHU]	300
u. Minimum heat dissipation rate [kHU/min]	60
v. Minimum control room monitor size [in]	19
w. Minimum in-room monitor size [in]	19



x. Minimum Table Height [cm]	52
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2. Additional specifications

<b>Generator</b>	
<input checked="" type="checkbox"/>	a. High-frequency generator with automatic dose rate control
<input checked="" type="checkbox"/>	b. Continuous and pulsed fluoroscopy ma modes
<b>Fluoroscopic Tube</b>	
<input checked="" type="checkbox"/>	c. Configuration <input type="radio"/> Overhead tube <input checked="" type="radio"/> Floor-mounted
<input checked="" type="checkbox"/>	d. Pulsed/grid fluoroscopic tube
<input checked="" type="checkbox"/>	e. Selectable filtration
<input checked="" type="checkbox"/>	f. Dual focal spots (please specify)
<input checked="" type="checkbox"/>	g. Collimation – fully adjustable manual and automatic exposure control with visible light field display. Rotatable +/- 45 degrees
<b>Fluoroscopic spot device/imaging tower</b>	
<input checked="" type="checkbox"/>	h. Flat panel detector technology
<input checked="" type="checkbox"/>	i. Automated image capture and save, to include last image hold
<input checked="" type="checkbox"/>	j. Removable lead curtains with counter weights for when curtains are not in use
<input checked="" type="checkbox"/>	k. Ergonomic, ambidextrous controls
<input checked="" type="checkbox"/>	l. Tabletop travel controls
<input checked="" type="checkbox"/>	m. Collimation control
<b>Radiographic/overhead tube crane system</b>	
<input checked="" type="checkbox"/>	n. Patient alignment system (laser alignment/positioning lights)
<input checked="" type="checkbox"/>	o. Table and upright auto tracking package
<input checked="" type="checkbox"/>	p. Pre-programmed exposure settings located on tube or in control room
<input checked="" type="checkbox"/>	q. Ability to change between table top, upright bucky, and table bucky from tube head
<input checked="" type="checkbox"/>	r. Ability to lower tube to within 16" of the floor when used with the wall stand
<input checked="" type="checkbox"/>	s. In room protocol adjustment via tube head or other in-room mounted system
<b>Control room fluoroscopic/radiographic control panel</b>	
<input checked="" type="checkbox"/>	t. Auto HIS/RIS refresh package
<input checked="" type="checkbox"/>	u. Quality control tracking package
<input checked="" type="checkbox"/>	v. UPS for x-ray control/image memory
<input checked="" type="checkbox"/>	w. Ability to send images directly from the control panel (no separate workstation required)
<input checked="" type="checkbox"/>	x. Ability to capture live video
<b>Wall stand/fixed wall detector</b>	
<input checked="" type="checkbox"/>	y. Ability to lower center of imaging plate to within 16" of the floor
<input checked="" type="checkbox"/>	z. Ability to tilt the imaging surface at least 90°



<input checked="" type="checkbox"/>	aa. Auto tracking of the tube and detector during vertical adjustment at the wall stand and/or tube.
<input checked="" type="checkbox"/>	bb. Height minimum – low enough to complete standing knee exams while patient is standing on the floor
<input checked="" type="checkbox"/>	cc. Height maximum – high enough to complete AP C-spine exams while patient is standing on the floor
<b>In-room monitor</b>	
<input checked="" type="checkbox"/>	dd. LCD in-room monitor <input type="radio"/> Ceiling-mounted <input checked="" type="radio"/> Pedestal-mounted
<input checked="" type="checkbox"/>	ee. In-room remote control to orientate and manipulate images
<input checked="" type="checkbox"/>	ff. High contrast black and white
<input checked="" type="checkbox"/>	gg. Anti-glare display
<b>Removable table detector requirements</b>	
<input checked="" type="checkbox"/>	hh. Wireless detector (not tethered to the system/table)
<input checked="" type="checkbox"/>	ii. Detector charger in bucky/holder
<input checked="" type="checkbox"/>	jj. Additional battery
<input checked="" type="checkbox"/>	kk. Charging station (if required)
<b>Table requirements</b>	
<input checked="" type="checkbox"/>	ll. Ability to tilt 90 degrees in both directions/full tilt
<input checked="" type="checkbox"/>	mm. Full articulation
<input checked="" type="checkbox"/>	nn. Auto-centering option to exact middle while the table is in horizontal or vertical position
<input checked="" type="checkbox"/>	oo. Table movement controls <input type="radio"/> Tableside <input checked="" type="radio"/> Trolley
<input checked="" type="checkbox"/>	pp. Removable/adjustable patient handgrips
<input checked="" type="checkbox"/>	qq. Removable/adjustable footrest
<input checked="" type="checkbox"/>	rr. Bariatric table
<input checked="" type="checkbox"/>	ss. Free floating manual table top
<input checked="" type="checkbox"/>	tt. Motor driven table top movement in the X and Y axis at stated maximum weight capacity.
<input checked="" type="checkbox"/>	uu. Auto tracking of bucky / tube for longitudinal travel
<input checked="" type="checkbox"/>	vv. Ability to lower tabletop height to at least 18" from the floor in the horizontal position at stated maximum weight capacity.
<input checked="" type="checkbox"/>	ww. Ability to accommodate wheelchairs and power scooters between fluoro tube and detector for seated fluoroscopy

### 3. Software Requirements

<input checked="" type="checkbox"/>	a. Monitoring of Dosage- The system must be able to supply a technology that allows for monitoring and tracking of radiation dose provided to a patient. DAP accuracy must be 99% reproducible with <2% deviation.
<input checked="" type="checkbox"/>	b. Bone suppression
<input checked="" type="checkbox"/>	c. Repeat rate – ability to track repeat/retake data to include such items as technologist (required unique identifier), reason for



	repeat, patient dose, exam type, etc. The data should be exportable to Excel or other databases for tracking, trending, and combining with data from other imaging sources within the facility.
<input checked="" type="checkbox"/>	d. Rapid image display, < 5 seconds preferred.
<input checked="" type="checkbox"/>	e. Dose Reduction- The system must have systems in place to facilitate regular protocol optimization and reduced radiation dose to the patient.
<input checked="" type="checkbox"/>	f. Fluoroscopy Loop – Ability to record and store dynamic fluoroscopy sequences. Storage capacity may be variable according to pulse per second settings (please specify). Please include storage and display options for recorded data review and archive.

4. Security/Connectivity Requirements

<input checked="" type="checkbox"/>	a. OEM-supported operating system
<input checked="" type="checkbox"/>	b. Latest DICOM print, store, commit, radiation dose structured report (RDSR), and modality worklist
<input checked="" type="checkbox"/>	c. Wireless connectivity to VA network – Compatible with 802.11b/g/n and FIPS 140-2 compliant
<input checked="" type="checkbox"/>	d. Encrypted hard drive
<input checked="" type="checkbox"/>	e. PACS compatibility – [Carestream Vue]

5. Added Value

Specifications listed below are not required, but preferred. Vendors who do not include the below specifications in the submitted offer will not be docked or excluded from consideration. Specifications listed below will be evaluated based on added value.

<input checked="" type="checkbox"/>	a. Additional year(s) of warranty
<input checked="" type="checkbox"/>	b. Post-warranty remote diagnostic service program
<input checked="" type="checkbox"/>	c. Version/platform long-range plan

**C. TRAINING REQUIREMENTS**

1. Clinical Training

<input checked="" type="checkbox"/>	a. On-site clinical applications training for [5] technologists during go-live
<input checked="" type="checkbox"/>	b. On-site follow-up clinical applications training for [5] technologists once technologists have hands-on experience with the system
<input checked="" type="checkbox"/>	c. Technologists who complete the clinical applications training shall receive continuing education credits (CEUs).

2. Biomedical Technician Training



Please reference the “Instructions to Offers” section 2.8.g for further information about the type of information to provide by equipment type not by specific request. Please also reference the “Instructions to Offers” section 7.3.3. for response format.

Technical training information to include detailed information about the curriculum and length of the biomedical technical training required for each equipment type.

Although the NAC will not award this training along with the equipment, it is imperative that the customer is informed that this training is available. Vendors must demonstrate that they can provide any required off-site training, therefore off-site training should be quoted as an optional item. Off-site training will be purchased at the time of need via a modification (if the original order remains open) or via a separate order. No travel expenses for any VA employees will be included in any HTME equipment or training order.

## **D. SERVICE REQUIREMENTS**

1. VPN/Remote Access – The vendor shall provide any and all equipment service programs, such as remote diagnostics, during the warranty period. The vendor shall provide post-warranty remote diagnostic service program as an “Add Option” with the offer. The system shall provide vendor remote diagnostics via VPN. The vendor shall either utilize the VA national site-to-site VPN or work with the Office of Cyber and Information Security and the VAMC Information Systems Security Officer to establish a client-based VPN.
2. Service and Operator Manuals – The vendor shall provide the following documentation for the proposed systems:
  - a. Two (2) copies of operator instruction manuals (one (1) electronic and one (1) physical copy)
  - b. Two (2) copies of a service manuals (one (1) electronic and one (1) physical copy)\*Vendors can include the physical copy as a priced line item in their quote as applicable.
3. Minimum Warranty – The system and accessories shall be covered under the manufacturer’s warranty and shall include all parts and labor for one year following acceptance by the VAMC. This warranty must include PMs as required by the manufacturer. The manufacturer’s factory-trained field service representatives shall perform installation and maintenance during the warranty period.

Vendors are encouraged to include any offerings for service, warranty, and training that may exceed the minimum requirements, to include information on their service support structure during and after the warranty period. Vendors who do not include any added value offerings for service, warranty, and training will not be docked or excluded from consideration. However, any such offerings will be evaluated based on added value.

## **E. OTHER INFORMATION/DOCUMENTATION REQUESTED**

Please reference the “Instructions to Offers” section 2.8a-h for further information about the type of information to provide by equipment type not by specific request. Please also reference the “Instructions to Offers” section 7.3.3. for response format.

1. Completed pre-procurement assessment form (6550 Appendix A)
2. Completed Manufacture Disclosure Statement for Medical Device Security (MDS2) form
3. Federal Information Processing Standard (FIPS) 140-2 certification
4. Product brochures
5. Technical specification sheets, to include dimensions and weight of the system
6. Typical drawings (pdf version of the CAD drawings)



7. Technical training- Biomedical: information to include detailed information about the curriculum and length of the biomedical technical training required for each equipment type.
  - Although the NAC will not award this training along with the equipment, it is imperative that the customer is informed that this training is available. Vendors must demonstrate that they can provide any required off-site training, therefore off-site training should be quoted as an optional item. Off-site training will be purchased at the time of need via a modification (if the original order remains open) or via a separate order. No travel expenses for any VA employees will be included in any HTME equipment or training order.
8. Support information to include your company's support structure during and after the warranty period
  - On-line or telephonic applications support and availability (include third party coverage)
  - A listing of field service engineer locations and availability
  - A listing of part depots

## F. TRADE-IN

<input checked="" type="checkbox"/>	a. In instances where sanitization of ePHI compromises the OS and/or application software, or requires the removal of internal storage media, the vendor accepts the equipment "as is" and can elect at their own discretion to contract with the original equipment manufacturer (OEM) to restore the system.
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The following equipment is available for trade-in. Please reflect any credits provided for trade-in equipment in the proposal.

Station	692
Manufacturer	Philips
Model	EZ Diagnost Eleva
EE/Asset Number	15275
Serial Number	1000385

