

XR-CT, VAMC MEMPHIS, TN

PO# 614-B40008

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The Discovery CT750 HD is the world's first head and whole body high definition Spectral CT system. It offers enhanced visual clarity and potential dose reduction when scanning all parts of the body, and all ages. The new FREEdom Edition is the foundation for the advanced Cardiovascular features of Snap Shot Freeze(1), Snap Shot Assist and Cardiac Spectral CT(*). Powered by the Gemstone Detector, the Discovery CT750 HD offers the highest available cardiac spatial resolution in the industry at 18.2lp/cm(*2) and features Gemstone Spectral imaging, the 1st quantitative dual energy on the market. The Discovery CT750 HD output is a valuable medical tool for the diagnosis of disease, trauma, or abnormality and for planning, guiding and monitoring therapy. This Discovery CT750 HD configuration includes enhanced features of: Gemstone Spectral Imaging (Dual Energy), all cardiac acquisition capabilities, Volume Shuttle and Volume Helical Shuttle for dynamic perfusion.

1) SnapShot Freeze requires CardIQ Xpress 2.0 Reveal on AW VS6 or AW Server 2) Based upon internal test data comparing Discovery CT750 HD cardiac half-scan spatial resolution to data from Advanced CT Scanners for Coronary Angiography, ImPACT Report CEP10043, March 2010, available at <http://www.impactscan.org>

See More

The Discovery CT750 HD delivers unparalleled image quality enabling the visualization of greater anatomical detail, for assessment and diagnosis.

- up to 33% improvement in spatial resolution for body modes
- demonstrates best-in-class spatial resolution of 0.23mm (calculated using 0% MTF) over the full

2 meter scan range

- up to 47% improvement in spatial resolution for cardiac scan modes
- offering the highest available cardiac spatial resolution in the industry at 18.2lp/cm in z and 14.8lp/cm in x-y(2). (measured at 2% MTF) Accurate quantification of stenosis in coronary and vascular vessels
- up to 40% improvement in low contrast detectability for greater soft tissue visualization, allowing improved visualization of smaller low contrast structures down to 2mm in size.

Know More

Gemstone Spectral Imaging: The Discovery CT750 HD system with Gemstone Spectral Imaging can acquire CT images using rapid kV switching to acquire dual energy samples of the same anatomical region of a patient in a single rotation from a single source. The differences in the energy dependence of the attenuation coefficient of the different materials provide information about the chemical composition of body materials. This approach enables images to be generated at energies selected from the available spectrum to visualize and analyze information about anatomical and pathological structures. Gemstone Spectral Imaging:

- registers energies more than 165 times faster than a dual source CT system at .33-second rotation speed
- generates derived images over a 50cm SFOV for the separation of materials such as calcium, iodine, and water
- provides derived monochromatic spectral images at 101 user selectable energy levels for image contrast optimization
- reduces beam-hardening artifacts due to bone, metal, and other high contrast material (example: iodine) up to 50%

- can detect iodine concentrations as low as 0.5% in density
- ASiR is now available within GSI allowing the users to optimize dose by selecting the amount of ASiR within the protocol
- New GSI presets have been added which have a lower CTDI vol. These presets were designed to achieve dose neutrality between GSI and single kV scanning for the same application.
- Can acquire up to 256 reconstructed slices per rotation comprised of 4 separate image series: monochromatic, two material density image series and 140 kVp

Volume Helical Shuttle: The Volume Helical Shuttle dynamic imaging option allows covering anatomical volumes up to 312.5mm for 4D CT Angiography exams, more than enough coverage for any organ in the human body. This correlates to 500 slices of dynamic 4D coverage. For perfusion assessment VolumeShuttle provides 80mm of axial shuttle coverage, and Volume Helical Shuttle provides up to 120mm of helical coverage.

Less Dose

The Discovery CT750 HD innovations continue with advances in reconstruction technology resulting in dramatic dose reduction opportunities in the entire body compared to predecessor CT systems. Adaptive Statistical Iterative Recon (ASiR): provides users with a new and innovative image reconstruction technology to reduce unwanted noise in diagnostic images. ASiR accurately models the noise in the raw data space and thereby removes the noise, allowing users to maintain image quality*(pixel standard deviation(4).

4) In clinical practice, the use of ASiR may reduce CT patient dose depending on the clinical task, patient size, anatomical location and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain

diagnostic image quality for the particular clinical task.

Low kV Scanning- The Discovery CT750 HD provides the ability to scan with energies as low as 80 kV. The physics of the k-edge absorption properties of Iodine at the lower energy inherently increases the image contrast. This is important for vascular studies. The Performix HD tube can deliver as much as 700mA at 80kVp. Both Veo and ASiR may be able to reduce image pixel standard deviation (noise) reduction and improve LCD(3). this is important for exams where good CNR (boost in contrast from lower kV, with potentially reduced noise from ASiR and Veo) is desired, such as liver studies.

3) In clinical practice, the use of ASiR and Veo may reduce CT patient dose depending on the clinical task, patient size, anatomical location and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. ASiR and Veo may reduce image pixel standard deviation and enable an improvement in LCD. In clinical practice, the actual level of image pixel standard deviation reduction and LCD improvement may vary. Consult with a radiologist and a physicist.

Discovery CT750 HD Technology

The revolutionary clinical advances of the Discovery CT750 HD are achieved via technological leaps forward in the entire image chain including reconstruction hardware and algorithms.

The key technological advancement is GE's proprietary Gemstone (TM) Detector enabling the improvements in spatial resolution, low contrast detectability, and spectral(multiple energy) imaging. The Gemstone detector is a garnet based CT scintillator was chosen for its highly efficient optical properties. Gemstone detector sets a new standard in CT scintillator performance supporting the next

generation of CT imaging applications such as spectral imaging. This is the first new CT scintillator to be developed in the past 20 years and is designed to support high definition imaging.

System components: This whole body CT system includes a compact geometry premium gantry, table, Power Distribution Unit, high performance Xstream HD console with 2 high definition LCD's, customized keyboard, and graphical user interface design for efficient workflow with one technologist.

Gantry: GE's compact gantry design and advanced 10G baud slip ring design continuously rotates the Performix HD tube, HD generator, Gemstone detector and Volara HD digital data acquisition around the patient. Exclusive VariSpeed allows short breath holds, more comfortable exams and the flexibility to customize protocols for unique patient needs.

- Aperture: 70 cm
- Rotational speeds: VariSpeed technology 360 degrees in 0.35, 0.375, 0.4, 0.475, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0 Seconds
- Integrated breathing lights & GE exclusive countdown timer
- Integrated start scan button with countdown timer to indicate when x-ray will turn on
- Tilt: +/- 30 degrees, speed: 1 degree/second
- Remote tilt from operator's console

Gemstone (TM) Detector: The GE proprietary Gemstone detector enables high definition CT. Ultimately the performance of every CT system begins with the detector, and Gemstone sets a new standard in scintillator primary speed, afterglow and performance supporting the next generation of high definition CT imaging applications such as single source spectral imaging. The proprietary Gemstone scintillator is the first new detector material developed in the past 20 years. The V-Res detector

benefits are:

- 98% efficient at 120kvp
- Fastest primary speed in the industry
- Best afterglow performance in the industry
- Higher resolution with lower noise per image
- 20 times less radiation damage of the scintillator when compared to competitive detector materials (Gadolinium Oxysulfide)
- Isotropic ceramic with a cubic structure
- Consistent Image Quality from the use of GE's exclusive patented detector material
- Backlit diode technology provides 100% active area

Performix HD X-ray Tube: Performix HD metal-ceramic tube unit with its unique electrostatic cathode collimator design allows the focal spot to be dynamically positioned and customized to the clinical protocol and patient. The anode heat storage capability and wide range of technique (10 ma to 835 ma, in 5 ma increments) give the technologist and physician the flexibility to tailor protocols for even the most demanding acute care and cardiac exams without tube cooling.

- Heat storage capacity: 8.0 MHU
- Maximum power: 107 kW (835mA)
- Small focal spot power: 570mA at 120kv, standard resolution
- Small focal spot power: 420mA at 120kv, high resolution
- Beam collimated to 56-degree fan angle
- Heat dissipation: -Anode (Max)>2,100 KHU/min
-Casing (cont) 648 KHU/min

HD High Voltage Generator: The HD Generator is capable of switching energy at very high speed to support Gemstone Spectral Imaging. High Frequency on-board generator allows for continuous high power demands required for acute care, cardiac and

bariatric exams.

- Maximum Output Power 100kW, 107kW with GSI
- kVp: 80, 100, 120, 140
- Energy Switching Speed: up to 0.5 msec (0.25ms with Cardiac GSI option)
- mA: 10 to 835, in 5 mA increments Maximum mA for each kVp selection:
 - kVp Max mA GSI Max mA
 - 80 700 765
 - 100 800
 - 120 835
 - 140 715 765

Volara HD Digital DAS (Data Acquisition System): The Volara HD digital DAS is high-speed data acquisition system that dramatically improves image quality, especially spatial resolution, low dose exams, and artifact reduction.

- up to 2,496 views per rotation for improvement in spatial resolution and improved image quality across the entire 50cm field of view
- 7,131Hz maximum sample rate
- 58,368 available input channels
- 23 bit dynamic range, 8,000,000 to 1

Integrated Laser Alignment Lights:

- Defined internal and external scan planes to +/- 1 mm accuracy
- Coronal light remains perpendicular to axial light as gantry tilts making visual readout easy from tableside or the operator console

Patient Table:

- Cantilever design for easy patient access, and stability
- Vertical range: 43 cm to 99.1 cm, scannable: 78.5 cm to 99.1 cm
- Horizontal range: 1700mm, (2000mm option)

- Horizontal speed: up to 137.5 mm/sec
- Table automatically re-centers on scan plane with changes in vertical position
- Helical pitches: 0.5:1, 0.9:1, 1.375:1, and cardiac pitches 0.16:1 to 0.24:1 for 0.35 sec cardiac scanning
- Table capacity: 227kg(500lb) +/- 0.25mm positional accuracy

Low Dose Cardiac Capabilities: The low dose cardiac capabilities allow the user to acquire cardiac images with the highest cardiac spatial resolution of 18.2lp/cm*2, with retrospective or prospective gated acquisitions utilizing 0.35 second rotation speed for excellent cardiac exams. The following features are included:

- SnapShot (TM) Pulse is a cardiac scanning technique that reduces patient dose up to 83%(5) and improves cardiac workflow, with uncompromising image quality. SnapShot Pulse uses prospectively triggered axial acquisitions synchronized by the patient heart rate, in which x-rays are turned on only during the required heart phase and turned off completely at all other times. Three to four snapshots are needed to complete a cardiac exam. Up to 300ms of padding is available with Snapshot pulse imaging
- SnapShot Imaging is designed to produce optimized cardiac images with minimum cardiac motion effects. Three different imaging acquisition techniques are available for the user with temporal resolution(TR)as low as 43ms. SnapShot Segment is a single sector mode with TR of 175ms, SnapShot Burst is a dual sector mode with TR of 87ms and SnapShot Burst Plus uses up to 4 sectors with TR as low as 43ms. For acute care, a triple rule out exam can be acquired with ECG-gating of the chest in a single breath hold in order to assist in the

diagnosis of coronary artery disease, aortic dissection and pulmonary embolism.

- Cardiac Trigger Monitor to synchronize R-Wave output with the CT system. Features include: ECG and Heart Rate Display, P-Lock Algorithm, Trigger Mark, Chart Recorder ECG Data Storage, ECG Notch Filter, System Interlock and internal Universal Power Supply Designed exclusively to work with GE CT Scanners.
- The ECG Editor allows the user to retrospectively modify trigger points identifying R-peaks on ECG trace as displayed on the console. The capability may improve successful cardiac acquisition rate by enabling users to perform the modification in the cases where there is irregular heartbeat or suboptimal triggers.
- Cardiac enhancement filters may reduce noise (pixel standard deviation) while maintaining spatial resolution in a cardiac image with three different levels of image filtration while preserving the edge image detail.
- ECG gated dose modulation reduces patient dose by modulating x-ray technique during acquisition based heart phase.
- SnapShot Assist - Helps users Optimize ECG-gated CT Acquisitions based on patient heart rate characteristics

5) Dose reduction comparing a SnapShot Pulse prospective gated axial acquisition with 75ms padding at a cardiac helical acquisition (40BPM) both with a 140mm scan coverage. In clinical practice, the use of SnapShot Pulse may reduce cardiac CT patient dose depending on the clinical task and patient heart rate. A consultation with a radiologist should be made to determine the appropriate acquisition mode and scan settings to obtain diagnostic image quality for the particular clinical task.

Xtream(TM) HD Workflow: Xtream HD Workflow Platform built on the LINUX operating system for flexibility and security, the next evolution of GE's workflow and reconstruction architecture built to help you maximize productivity and lower dose with ASiR. The split tabletop allows unrestricted patient viewing while supporting 2 - 19 inch color LCD monitors. Each work surface can be adjusted to accommodate a wide variety of operator preferences and site requirements.

Adaptive Statistical Iterative Recon (ASiR) provides the users with an innovative image reconstruction technology that may enable reduction in pixel noise standard deviation. The ASiR reconstruction algorithm may allow for reduced mA in the acquisition of diagnostic images, thereby reducing the dose required. ASiR may enable improvement in low contrast detectability(6).

6) In clinical practice the use of ASiR may reduce CT patient dose and improve low contrast detectability depending on the clinical task, patient size, anatomical location and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image image quality for the particular clinical task.

Xtream HD Reconstruction breaks through existing limits on speed, image quality and flexibility to provide an optimized volumetric workflow solution from acquisition to final report.

- Delivers up to 35 full fidelity images per second (ips) reconstruction
- Up to 16 ips network transfer rates
- DMPR (Direct Multiplanar Reformates) enables prospective 3D review of sagittal, coronal and oblique planes automatically
- Exam Split delivers the capability to split a series of patient images into separate groups for

networking

- Data Export and Interchange that allows you to easily share images with referring physicians and patients
- Complete set of clinically proven, low dose protocols and the ability to customize your own for a total of 8,460 programmable protocols. Xstream allows you to automate or build every task into protocols to increase throughput.
- Image decomposition to: -Retrospective thin images from data sets where thicker images were initially reconstructed -Facilitates more detailed image & analysis -Improves 3D and reformat visualization
- Neuro 3D Filters provide users the capability to filter angiographic data using a specially designed and optimized 3D filter. May be prospectively applied with Application Auto-Launch
- VariViewer is an interactive axial review mode that can change the slice thickness reconstruction instantaneously

Xstream HD Operator Console:

- HP Z800 Computer with integrated reconstruction modules
- Image storage for approximately 460,000 512 images
- 4.7 GB DVD/CD-R for data interchange (not recommended as a long term archive)
- Scan data storage for approximately 3000GB
- VolumeViewer 5.0
- AW Server Connection

Scan: Xstream HD workflow allows simultaneous scanning, image reconstruction, display, processing and analysis, as well as networking, archival and filming

- Anatomical programmer allows quick and easy

access to user programmable protocols. These are separate selector for adult and pediatric protocols

- Protocols include preset scan time, kVp, mA, scan mode, image thickness and spacing, table speed, scan FOV, display FOV and center, recon algorithm, networking destination, archiving and special processing options like Direct MPR
- AutoVoice: 3 preset (English) and 17 user defined messages automatically deliver patient breathing instructions, especially useful for multiple helical scanning
- Trauma Patient mode: Allows patient scans and image display/analysis without entering patient data before scanning
- Reconstruction Algorithms: Soft Tissue, Standard, Detail, Bone, Bone Plus, Lung and Edge

OptiDose Features: OptiDose management features: bowtie filters optimized for coronary angiography and pediatric exams, 3D dose modulation, Color coding for kids, hardware and software for x-ray beam tracking, ECG dose modulation, to name a few of GE's dose optimization features, all based on the ALARA principle.

- 3D Dose modulation. Before the scan, clinicians can select the desired Noise/IQ: CT then tailored automatically exposure parameters, patient to patient and real-time x-y-z during each scan, resulting dose optimization for the selected noise index.
- Tracking collimator hardware and software for x-ray beam tracking to minimize patient dose
- Filtration of the x-ray beam is optimized independently for body and head applications
- DLP (dose length product) and dose efficiency display and reports during scan prescription provide patient dose information to the

operator and can be saved with each exam

- DICOM Dose report included with each exam
- Dose Check provides the user with tools to help them manage CT dose in clinical practice and is based on the standard XR-25-2010 published by the Association of Electrical and Medical Imaging Equipment Manufacturers (NEMA). Dose Check provides the following:
 - Checking against a Notification Value if the estimated dose for the scan is above your site established value
 - Checking against an Alert Value where the user needs specific authority to continue the scan at the current estimated dose without changing the scan parameters if the estimated dose exceeds the alert value
- The ability to define Alert Values for Adult and Pediatric with age threshold
- Audit logging and review capabilities
- Protocol Change Control capabilities

SMART Technologies: Allows for the Discovery CT750 HD Scanner to tailor the x-ray beam to the patient being scanned. In order to use the optimal amount of dose to achieve the desired image quality, it is important to know the patient attenuation. This information can be generated by the scanner utilizing the scout data, which is then leveraged by our family of SMART technology features:

- SmartmA and AutomA - 3D modulation of the tube current to deliver the right dose at the right place
- GSI Assist - Helps users select the corresponding preset for a targeted CTDI for a comparable non-GSI AutomA scan
- kV Assist - Recommended tube voltage and current to achieve the lowest dose while meeting desired image quality

Volumetric Image Space Reconstruction (VISR) are 3D filters that reduce image noise (standard deviation) without compromising spatial resolution to provide clear visualization in neuro and cardiac imaging.

Dynamic Z-Axis Tracking provides automatic and continuous correction of the x-ray beam position to block unused x-ray at the beginning and end of a helical scan to scan to reduce unnecessary radiation.

Image Networking: Exams can be selected and moved between the Discovery CT750 HD System and any imaging system supporting the DICOM 3.0 protocol for network send, receive and pull/query.

- Standard Auto-configuring Ethernet
- Direct Network Connection
- Supports 1GB or 10/100 BaseT
- Supported Protocols -DICOM 3.0 Network
-Advantage Net -InSite Point-to-Point -TCP/IP
(for System Administration)

DICOM Conformance:

- DICOM 3.0 Storage Service Class
- Service Class User (SCU) for image send
- Service Class Provider (SCP) for receive
- DICOM 3.0 Query/Retrieve Service Class
- DICOM 3.0 MOD Media Service Class
- DICOM 3.0 Storage Commitment Class Push
- DICOM 3.0 Modality Worklist (incl:Performed Procedure Step through ConnectPro option)
- DICOM 3.0 Print

InSite Broadband included: All hardware and software required to connect this CT system to GE's InSite On-Line Center via secure VPN high-speed internet connection. Enables customer to access services designed to: reduce downtime, improve quality, enhance performance, increase productivity, and expand imaging capabilities, and increased privacy and security of data transmissions.

128i provides 128, 0.625mm images, per axial rotation allowing increased image-space sampling and enables improved visibility of small objects.

Warranty: The published Company warranty in effect on the date of shipment shall apply. The Company reserves the right to make changes. All specifications are subject to change.

Regulatory Compliance: This product is designed to comply with applicable standards under the Radiation Control for Health and Safety Act of 1968.

Laser alignment devices contained within this product are appropriately labeled according to the requirements of the Center for Devices and Radiological Health.

This product complies with the performance standards of 21 CFR, sub-chapter J, and the applicable IEC 60601-1 series.

This product is a CE-compliant device that satisfies regulations regarding Electro-Magnetic Compatibility (EMC) and Electro-Magnetic Interference (EMI), pursuant to IEC-60601-1-2.

Siting Considerations: See the Pre-Installation manual for details of the siting requirements for GE Discovery

2 1

- Keyboard
- Operator and Technical Manual
- Labeling

3 1

Standard length cable set for CT750 HD

4 1

The VT 2000x High Capacity Table enables volume scanning with increased weight capacity.

Key features of the VT2000x table include: 675 lb. (306kg) weight capacity, 2000mm scannable range, 137.5mm/sec travel time, real-time position control to support advanced application such as SnapShot Pulse, VolumeShuttle, and Volume Helical Shuttle.

The VT2000x is an option only available with Discovery CT750 HD.

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The SnapShot Freeze motion correction package includes a comprehensive solution to correct for the problems of motion that may occur in cardiac imaging. The following items are included in the package:

SnapShot* Freeze

SnapShot*Freeze:An intelligent motion correction algorithm, which is designed to reduce blurring of coronary arteries due to motion artifacts. This is done by characterizing the vessels' motion path and velocity from adjacent cardiac phases on a vessel-by-vessel and segment-by segment basis. This information is then used to calculate the coronary artery vessel position at the target phase. Utilization of SnapShot Freeze in clinical practice may assist the physician's diagnostic interpretability of coronary CTA by reducing the burden of non-diagnostic segments.

Using a mechanical heart phantom it was shown that SnapShot Freeze reduces motion artifacts up to 6X, equivalent to a 0.058s equivalent gantry rotation speed with effective temporal resolution of 29ms.

SnapShot* Assist

SnapShot* Assist: A guidance based tool that provides reference scan settings based on an individual's heart rate characteristics , rate variability and BMI(when parameters are entered) to guide the CT operator to help obtain optimal cardiac scan settings. SnapShot Assist uses the patient's recorded heart information to display scan parameters (including scan mode, cardiac phases, padding and pitch) that could be used during the cardiac CT scan. These recommended settings are based on over a decade of GE experience in cardiac CT and can be updated to serve as a department's best practices scan

protocols. SnapShot Assist is designed to help users achieve consistent application of advanced cardiac scanning and reduce the complexity of creating diagnostic images.

SnapShot Freeze & SnapShot assist require the cardiac imaging package with an ECG monitor and Package of Three (3) Single Floating License of CardIQ Xpress Reveal

A Single Floating License provides one concurrent user license for an application that can be installed on AW Floating License manager at your facility. This license can be used by any AW in your facility that is "Concurrency Enabled" and is configured to use floating licenses.

Requires:

- AW Floating License Manager to be installed at your facility
- AW's "Concurrency Enabled" to access this floating license

CardIQ Xpress Reveal

CardIQ Xpress Reveal is an integrated post processing image analysis software dedicated to the application of cardiovascular imaging on GE's Advantage Workstation. The CardIQ Xpress Reveal software option can be used to effectively display, reformat and analyze 2D or 3D cardiac CT images for qualitative or quantitative assessment of the heart anatomy and coronary artery vessels from single or multiple cardiac phase image data sets.

CardIQ Xpress Reveal is launched via its own link or from Volume Viewer applications. It provides the use with both single and multiple cardiac phase analysis protocols.

The operator has a variety of different 2D, 3D or reformatted protocols to choose from to perform analysis and measurements. They include: display of the coronary vessel tree, angiographic view, 2D and

3D rendering of single or multiple coronary artery vessels or grafts, automatic reformation of cross sectional cardiac images into planes along short or long axis of the heart, one-touch cath views for 3D or reformatted images, 3D angiographic view phase registration, plaque density measurements and color mapping of the non-calcified and calcified plaque, IVUS-like views, 3D ejection fraction, 4D aortic and mitral valve views, relative perfusion, transparency views and beating heart images from single or multiple cardiac phase image data sets.

The CardIQ Xpress Reveal tool can be applied to standard axial or helical CT images. These images can be acquired on GE's multi-slice CT scanners using the cardiac CT SnapShot Pulse, Segment, Burst or Burst Plus imaging acquisition options.

Clinical Benefits: Cardiovascular CT imaging using multislice CT technology is an exciting clinical application that provides clinically relevant and significant information for cardiovascular disease management as a non-invasive imaging technique. Multislice CT, which has been quickly adopted by the clinical community, has the advantage of being clinically powerful, reliable and accessible, as compared to other invasive or non-invasive cardiac imaging techniques. One of the critical components for an effective cardiac CT application is a fully integrated post processing and analysis tool tailored for cardiac imaging. The CardIQ Xpress Reveal option is designed to provide a user centered-and time effective means for cardiovascular image manipulation. Clinical applications include: imaging of cardiac morphology, coronary artery imaging and assessment of relative perfusion, assessment of plaque, bypass graft patency, post intervention follow-up and functional assessment

CardIQ Xpress Reveal simplifies user workflow by:

- Pre-processing the images & models for quick

review of the exam

- Loading images into the auto launch area area for real-time review of multiple exams
- Easy switching from one protocol to the other without exiting the application
- Single click one-touch cath views
- Batch movie output within cardiac reformat
- User defined layouts within vessel analysis for simplified viewing and filming
- Multi-phase load to single phase review

The CardIQ Xpress reveal option includes:

- 2D/3D coronary vascular tree images with automatic vessel tracking & labeling with single click of a protocol. Images can be reviewed in axial, reformat, curved, oblique MPVR, and cross section views
- Various measurements of coronary arteries to include stenosis density and length of stenotic area
- PlaqID to color code non-calcified and calcified plaque with volume measurements.
- 2D reformat review with predefined views to review all coronary vessels.
- Color enhanced relative perfusion defect pattern recognition for detection of ischemic heart disease with 4 color patterns
- Automatically render data for streamlined reading to include: 3D rendered heart, angiographic view, tree VR, and ejection fraction.
- Reformat standard axial CT images of single or multiple cardiac phases automatically into short, long and two chamber long axis of the heart for easy review
- Perform functional evaluation of the heart and cine capabilities for multiphase beating heart images with one easy click

- Automatic extraction of the left ventricle with automatic selection of ES and ED for ejection fraction & volume measurements
- 4D aortic valve and mitral valve views with one touch
- Select protocols within the review step area allowing user to select a different protocol without exiting the application
- Pre-defined VR IVUS-like views for virtually determining the different compositions of plaque
- One touch angiographic view protocol display coronary vessel tree and myocardium with automatic removal of heart chambers for cath comparative view
- Heart transparency model allowing for full visualization of coronaries in relation to the heart chambers with the ability to fade out the chambers of the heart
- Oblique reformat views in the standard cath angles to provide an analysis of the coronary vessels
- Load multi-phase images, review the data and decide which phase or phases will be reviewed for further processing by dropping the non-essential phases
- Phase registration - ability to register images from different cardiac phases into a unique data set. The data set can then be saved as a 3D object and/or used for further analysis

AW Server 16,000 Images Data Center Installation

The AW Server delivers distributed 3D Visualization capabilities throughout the Enterprise and at any remote reading location. It utilizes advanced thin client technology to convert virtually any PC to a high-end 3D post processing station. In addition to this, the AW server also serves as a workflow engine enabling optimal collaboration among physicians and

allowing 3D visualization to be leveraged easily to facilitate diagnosis decision-making. The AW Server also enables faster turnaround of post-processed results to referring physicians by allowing them to access the data instantly, while maintaining security and privacy of patient data.

The following capabilities are included:

- Unlimited number of clients, up to 16,000 concurrent slices (512x512) can be loaded across all users of the server. (Note: advanced applications require purchasable concurrent licenses).
- Two concurrent instances of GSI Viewer supported. (Note: requires optional optional license purchase).
- Accessories for mounting hardware in your data center rack. Please refer to AW Server site requirements document for details on rack space needed.

Key features:

- Access to 3D visualization capabilities including MIP/MPR/VR, segmentation, fly-throughs and PET/CT from any number of client PC's by simply downloading a client application from the server's web interface.
- Unique "Smart Compression" technology automatically displays full fidelity static images even when compression is turned on for increased interactivity. This allows for diagnostic reads on full fidelity static images even at low bandwidth. On-image visual indicators notify user when compression is in effect.
- Intuitive work list interface with custom work lists, easy access to priors and exam states.
- Programmable ability to automatically push saved results to one or more DICOM hosts such

as PACS when closing a session.

- Optional pre-processing capability to automatically process exams in background based on preset rules, minimizing wait time and keeping exams ready to read.
- Ability to open up to 3 simultaneous application sessions per user and instantly switch between these sessions.
- Ability to save the state of post processing any time and restore it from any client, allowing multiple radiologists or technologists to contribute to post processing results.
- Ability to float application licenses among AW workstation (requires VolumeShare2 or later), server and Centricity AW Suite.
- Enterprise directory integration for single sign-on user authentication with audit trails.
- Support for seamless integration with GE Centricity PACS. (Requires appropriate Centricity PACS software to be installed and integration license for AW Server. Centricity PACS-IW and AW Server integration is currently not validated. Centricity RIS-IC and AW Server integration is currently not validated). This integration allows for launching AW applications directly from the Centricity PACS RA1000 work list and also features exclusive ability to integrate AW Server and PACS short term storage, hence avoiding the need to duplicate exam data on two (2) different databases.
- Open API's that support any RIS/PACS work list to integrate with the AW Server and launch AW applications directly from the PACS Interface. (Requires RIS/PACS vendor to use AW Server open API's and provide appropriate interface to launch AW applications. For more details please refer to AW Server integration manual)

Performance and intended uses:

Performance and interactivity on client PC's depends on the network bandwidth, latency and client PC configuration. To attain optimal performance, minimum bandwidth required is 40Mbps (LAN) with a latency of 20ms or lower. The server may be used over WAN/Internet as well although performance will heavily depend on round trip latency between client PC and server.

The server supports various compression levels selectable by user. The innovative "Smart Compression" technology applies selected compression level only when user is interacting with the images to optimize performance. The images are automatically displayed at full fidelity once interaction stops. Clear visual indication on the images indicates when compression is being applied to the images. A minimum of 3Mbps bandwidth per client with latency less than 35ms is recommended for reasonable performance when compression is used.

Specifications:

AW Server software is packaged as a turnkey solution that includes off-the-shelf enterprise class hardware for optimal performance.

Server Hardware and O/S:

- 4X Six core Intel Xeon X7542 CPU
- 64GB RAM
- 2-1 Gbps NIC for DICOM and client traffic
- Dedicated Embedded Lights Out Manager (LOM)
- Fully redundant power and cooling
- Novell SUSE Enterprise 11 64-bit Linux. A minimum of 3Mbps bandwidth per client with latency less than 34ms is recommended for reasonable performance when compression is used.
- 4U form factor (including DAS and UPS)
- 6TB of usable direct attached image storage

with 2U form factor

- Raid 10 (striped and mirrored) to maximize data integrity, redundancy and performance

Client requirements:

Note: It is the customer's responsibility to ensure that every client PC meets these minimum specifications for optimal performance.

Hardware:

- Processor 2.2 GHz Pentium 4 minimum Dual core processors recommended
- Memory 1024 MB minimum
- Disk drive 250MB free space available
- Screen resolution 1024H x 768V minimum with full color (32 bit) (1280H x 1024V or 1600H x 1200V recommended)
- Network card 100 Mbps minimum (1000 Mbps recommended)
- Internet connection. Customer provided IPSEC VPN, for internet/WAN operation
- Mouse: Two or three-button mouse. Three button mouse suggested for best use of functions

Software:

- Operating system Windows XP 32 bit, Windows Vista SP1 32 bit, Windows 7 32 bit, Windows XP SP3 32 bit, Windows Vista SP2 32 bit, Windows 7 SP1 32 bit, Windows XP SP2 64 bit, Windows 7 SP1 64 bit, AW 4.4 (CTT 5.2.10), AW4.6 (SLED11), CT Console (CTT OS 6.3.10), CT Console RT Innovation (CTT 6.3.11), CT Console Cj2.0 (SLES11 SP1), Mac Parallels (Mac OS x 10.6, Parallels 6.0, Win XP Pro SP3 32bit/Win 7 SP1 32 bit.
- Browser Mozilla 1.7.x (or later), Internet Explorer 6.0.x, 7.0.x, Firefox 3.0.x, 3.5.x web browsers.
- Browser security settings JavaScript enabled.

Installation includes:

- Site readiness survey
- Integration of server hardware into IT infrastructure
- Installation of Enterprise OS
- Installation of GE Healthcare applications software
- Configuration of active directory (if required)
- Configuration of up to 5 DICOM hosts provided prior to installation
- Installation of one client for purposes of server testing and applications training

Service contract and applications training are optionally purchasable. Warranty information can be found in terms and conditions.

Concurrent licenses for supported advanced applications are optionally purchasable.

AW Server 2 Pre-Processing

This option enables integrated pre-processing to automate processing tasks in the background, thus increasing productivity. Tasks such as bone removal, segmentation of cardiac structures, colon, etc. are performed automatically upon DICOM exam transfers to AW Server based on rules. The rules can be configured based on DICOM series description field using the administrator panel for AW Server. The results of pre-processing are saved as a series under the exam and are automatically loaded when the exam is launched by the user with the appropriate post processing protocol, hence minimizing loading time. For more information on configuring the pre-processing, please refer to the operator manual.

6 1

Advance Installation Services - provides 8 hours of labor only service to support the installation of the AW Server

7 1

Advantage Workstation Server 2 Full Service This online course covers the AW Server 2 system and is

intended for engineers that will install and service these systems. The topics include:AW Server Clinical Environment, Pre-Installation and installation tasks, Client installation, Configuration overview, Break/Fix Model, Server diagnostics, administration, and utilities,Clinical applications and product tools. This course must be taken within 2 years from the purchase date.

8	1	<p>This catalog includes Professional Services of Project Management and IT Network Engineer remotely. Dedicated Project Manager will work with customer IT department hand-in-hand and serve as a single point of contact from project initiation to customer training and turnover. Network Specialist will remotely (GE office) work with customer IT department to help the customer verify all the network parameters and conditions are met. Optimum Network performance is one of the important things for SW Server performance. Recommended hardware changes by the network engineer to improve performance is the responsibility of the customer.</p>
9	1	<p>This catalog provides 20 quick reference cards for AW Server, describing frequently used keyboard shortcuts and menus.</p>
10	1	<p>2 Day AW Server Training</p> <p>Two Day TiP AW Server Training</p> <p>One 2-day onsite applications training visit for AW Server. Includes T&L expenses. Days provided consecutively.</p> <p>This training program must be scheduled and completed within 12 months after the date of product delivery.</p>
11	1	<p>AW Floating License Manager</p> <p>AW Floating license manager is the license server software that manager AW floating licenses at your facility. You will need ONE license server per facility to</p>

manage licenses. The software will be loaded on hardware provided and maintained by your IT department (Note: Not Applicable with AW Server purchase). The hardware should meet the following minimum specifications:

- P4 1.5GHz Processor
- 512 MB RAM
- 100MB free hard disk space (5GB recommended for license metering log files)

Operating System specifications:

- Windows 2000 Professional, Server, 2003 Server or XP Professional

Included with this order is the AW Floating license manager software package.

12 1

VolumeShare 5 Software Only Upgrade

13 1

CT Perfusion 4D Neuro Upgrade Package is an image analysis software package that allows the evaluation of dynamic CT data following an injection of a compact bolus of contrast material, generating information with regards to changes in image intensity over time. The software provides a quick and reliable assessment of the type and extent of cerebral perfusion disturbances by providing qualitative and quantitative information on various perfusion related parameters, which may be related to acute stroke, brain tumor angiogenesis and treatment thereof. The key perfusion parameters that CT Perfusion 4D Neuro Package generates are:

- Regional Blood Volume (BV; ml/100g)
- Regional Blood Flow (BF; ml/min/100g)
- Regional Mean Transit Time (rMTT;s)
- Capillary Permeability Surface Area Product (PS)
- Time of Arrival (IRF T0)
- Transit Time to IRF Peak (Tmax;sec)

The user now has the ability to visualize all the

information in true volumetric form.

Additional elements of Perfusion 4D include Smart Map, a new algorithm that improves the image quality of the functional maps in the presence of noise.

Perfusion 4D also includes a new streamlined workflow for Tissue Classification. Tissue Classification may aid the clinician in determining the status of the tissue based on blood volume and one of blood flow, mean transit time, or Tmax.

Productivity is enhanced through the protocol driven design of the user interface. An example of this is the Brain Stroke Protocol (Automatic) that completes the processing with one touch reducing the time required to process the exam and to enhance repeatability.

This upgrade package requires the PRIOR INSTALLATION of Perfusion 4.

Perfusion 4D is compatible with AW VolumeShare5 or Advantage Workstations Server.

Xtream Injector provides one handed synchronized start of the scan and injection from the CT Operators console or from the scan room providing consistent simultaneous start of contrast injection and scan acquisition protocols.

It utilizes the CiA Class 4 functionality which includes the following benefits:

Up to a 50% reduction in the number of user interface selections needed when compared to systems not utilizing the Xtream Injector. The 50% reduction comes from the fact that users select one button to start the scan acquisition and injection.

- o Better control of contrast enhancement by synchronizing start time of the contrast injection and CT scan
- o Improved workflow by enabling single-button start of both the injector and scanner from the scanner
- o Injection parameter preview from

the scanner console prior to beginning the scan o
Post-study review of injection results from the
scanner console o Automatic documentation of
injection results in PACS

15 1

Un-Interruptible Power Supply

Un-interruptible Power Supply for CT750 HD, and
LightSpeed VCT systems. Un-interruptible power
supply: supply's power to CT console allowing the
user to power down system in the event of source
power loss; thus preventing the loss of scan data
previously acquired before source power loss. This
UPS also: -Provides continuous protection to all of the
system's major electronics subsystems -Protects the
tube from power outages because it continues to
provide power for tube cooling. -Minimizes system
restart time by continuing to power the thermal
control of the DAS and detector. -Provides enhanced
ease of patient removal from the system by keeping
the table powered.

16 1

CT Main Disconnect Panel - 125 Amp with Auto Restart

FEATURES/BENEFITS

- Custom panel serves as the main power disconnect between the CT system and the facility 400-480V power source Panel provides short circuit, overload, undervoltage release, automatic restart, and emergency shut down for the CT system
- Reduces installation time and cost by providing a single-point power connection eliminating the need to mount and wire a number of individual components
- Standardized design and testing assures high product quality and system reliability
- On systems where the optional 12.5 kVA partial system UPS is ordered, the Main Disconnect Panel also provides mandated emergency

power off control via a UPS output disconnect function included in the panel design

- Provides a standardized platform for future UPS or other GE engineered modifications or upgrades

SPECIFICATIONS

- Dimensions (H x W): 30.24 in. x 19.78 in.
- Enclosure Depth: 7.05 in.
- Handle Depth: 10.3 in.
- Weight: 110 lbs.
- UL, cUL and CE labeled
- Panel disconnect provides OSHA lockout/tagout provisions
- Surface or semi-flush mounting
- Partial system UPS sold separately (E4502F)

COMPATIBILITY

- CT LS Pro 16, LS Pro 32, RT Systems, LS VCT, CT 750HD, Discovery 690 VCT

NOTES:

- Customer is responsible for rigging and arranging for installation with a certified electrician
- ITEM IS NON-RETURNABLE AND NON-REFUNDABLE

17 1

Medrad Stellant Integrated Injector - ISI 900

The Imaging System Interface (ISI 900) is an option that allows a Stellant CT Injection System to interface with a CT scanner. It interacts with an injector and scanner through direct cable connection.

18 1

Slicker - CT HD750 and VCT w/GT 2000 Table (2 Piece Set)

FEATURES/BENEFITS

- Two-piece, sealed slicker cushion set has

comfort pads enclosed inside the slicker cover and extender cover

- Durable, clear PVC plastic cover facilitates faster, more thorough cleanup of blood and fluids
- Increase system uptime by protecting table from spills and particulate contaminants
- Thermo-sealed seams and flaps prevent contaminate buildup in hard to clean areas

COMPATIBILITY

- VCT with GT 2000 Table, CT HD750

19 1

Footswitch Slicker for CT HD750 and VCT Systems

The footswitch slicker for CT VCT 2000 and 1700 systems is made of durable, clear PVC plastic that protects the footswitch and facilitates faster, more thorough cleanup of contamination caused by blood and other body fluids. Cover is held securely in place with Velcro...H

20 3

This catalog number is for a 2-day physician or 3-day technologist course.

The CT Masters Series includes a variety of courses designed to maximize physicians' and technologists' use of GE's CT advanced applications software packages and enhance their understanding of CT multi-slice technology in clinical practice. These courses are taught by leading physicians at clinical sites throughout the United States.

Course description, agendas and registration information are listed on the GE Healthcare website at: <http://www.gehealthcare.com/ctmasters>

Courses are schedule at various times throughout the year and are subject to change.

Price includes tuition only and is non-discountable. Travel and Living are Not included.

This trainina proaram must be scheduled and

completed within 12 months after the order install date. Unused training after the expiration date is non-refundable.

21 1

Additional set of tech pubs

22 2

6 Day CT TiP Onsite System Training

CT Onsite Training for a new CT system

- One 4 day onsite visit to coincide with system start-up.
- One 2 day onsite follow-up visit 6-8 weeks post system start up.

During the first visit, the applications specialist will work with the medical and technical staff on system operation and patient procedures. The training produces the best results when a dedicated core group of 2-4 CT technologists complete the session with a modified patient schedule. It is suggested that key physicians are available to participate in the protocol implementation and image quality review sessions. By the end of this visit, the core group should be able to perform the routine patient procedures.

The 2 day revisit is suggested after the staff has run the system for 6-8 weeks, however this is flexible based on the site needs. The training will focus on the intermediate and advanced functions of the system or special needs of the customer. The training produces the best results when the same dedicated core group of 2-4 CT technologists from the initial visit complete the session with a modified patient schedule.

This training program must be scheduled and completed within 12 months after the date of product delivery.

23 2

TiP HQ Class CT750HD - Full Service

3.5 day CT course held in the Milwaukee area.

Includes travel and modest living expenses.

This course is designed to introduce the technologist to the CT750HD system.

This training program must be scheduled and completed within 12 months after the date of product delivery.

24 1

The LightSpeed Pro Advanced course is intended for engineers servicing LightSpeed Pro 16, LightSpeed RT, and forward production LightSpeed 16/Ultra/Plus (starting in 2004) systems. This course must be taken within 2 years from the purchase date.

25 1

CT LightSpeed VCT Upgrade Service Training Class

The LightSpeed VCT package is intended for customers who have a LightSpeed VCT (32 or 64 slice) and are already trained on LightSpeed Pro. The Class/Lab course provides the instructional and hands-on opportunities for the student to acquire the fundamental competencies to effectively and safely service a LightSpeed VCT scanner. This course must be taken within 2 years from the purchase date.

26 1

CT LightSpeed VCT HD Upgrade Service(Class/Lab)

This course will teach the engineer how to service the new High Definition CT scanner. The HD system builds off of the VCT technology and footprint. New Service features include: a bleeder-less kV check, streamlined tube alignment process, and a System Health Monitor. This course must be taken within 2 years from the purchase date.

27 1

CT LightSpeed 7x and Optima 660 (Class/Lab)

The CT LightSpeed 7x & Optima 660 course is a differences class and is intended for Engineers who have completed (R0026CT) LightSpeed Pro Training. It will equip the Engineer with system and subsystem theory and hands-on lab activities to address technical service issues for the 32/64-slice family of

scanners (including LightSpeed VCT, LightSpeed VCT XT, LightSpeed VCT Select, and Optima 660. This training must be used within 2 years from the purchase date.

28 21

Meals and Lodging Expense has been developed to allow the customer the convenience of prepaying for their meals and lodging expenses when attending Technical Service Training at the GE Healthcare Institute located in Waukesha, WI.

The price of this convenience is based on a per day basis. Thus a quantity of 1 is equal to 1 day's meals and lodging expense. When purchasing the meals and lodging expense please be mindful of weekend days during the training stay and include 2 days to cover a weekend in the purchase quantity.

Examples: A 5-day course needs a quantity of 5. Any course longer than 5 days should include 2 days to account for the weekend stay. Any course longer than 10 days will require an additional 4 days of the meals and lodging expense to cover the 2 weekends of the stay. Thus a 15-day course would have a quantity of 19 days to cover the 2 weekends of the stay. This expense must be used within 2 years from the purchase date.

Three meals a day Monday thru Thursday, 2 meals on Friday, pluse breaks are provided in the onsite cafeteria. The GE Healthcare Institute cafeteria closes Friday after lunch and reopens Monday morning for breakfast. Weekend meals are the responsibility of the customer.

Only for In-resident courses to be taken at the GE Healthcare Institute.

29 3

The AIRFARE EXPENSE has been developed to allow the customer the convenience to prepay their roundtrip Airfare expenses when attending Technical Service Training at the GE Healthcare Institute located in Waukesha, WI. To be used for engineers attending

In-Resident Class/Lab courses for Diagnostic Imaging.

Customer will make their Airfare arrangements thru the GE Travel Center. Specific directions will be provided to the customer upon confirmation of class. Please note that this expense must be used within 2 years of the purchase date

30 2

Lodging Weekend Expense

Weekend Lodging Expense is to cover Saturday and Sunday lodging expenses for those engineers who are staying at the Rivers Edge Condos while attending Diagnostic Imaging Biomed training at the Healthcare Institute. Please note that there are no meals included on the weekend. Must be used within 2 years from the purchase date.

31 1

CT Basic Physics/Instrumentation (Web)

The CT Fundamentals Course is Designed for Service Engineers who have Little or No Familiarity with CT Systems. The Course Teaches General Processes, Concepts, and Equipment Used in CT Scanning. This Course is Delivered Via the internet as an online training course. This course must be taken within 2 years from the purchase date.

32 1

CT Lightspeed Pro Advanced Service (Web)

Web course is 8 hours long

Sales Description:

Introduction to CT LightSpeed Pro system theory and subsystems

Executive Summary:

This is a computer-based training course intended to prepare Service Engineers on basic system theory for the LightSpeed Pro product line.

Course Competencies:

The curriculum builds on concepts taught in CT Basic Physics and is a prerequisite for the CT LightSpeed

Pro and Discovery ST in-resident training classes at the GE Healthcare Institute.

Special Considerations:

A functioning laptop computer with a CD-ROM reader, network card and a modem card is required for use during this course. The browser on the computer must be IE4 or Netscape 4.5 or higher. Minimum system requirements include 133 MHz Windows 95, NY 4.0 or higher 32 MB of RAM 16-bit color display adapter. Proof of completion of this eLearning course is necessary prior to attending any subsequent GE Healthcare In-Resident training. This course contains proprietary content. For customers attending this course, special paperwork is required to take this course. Please see the registration page for details on the enrollment process. This course must be taken within 2 years from the purchase date.

33 1

CT GLOBAL OPERATORS CONSOLE 3,4,& 5

The Global Operators Console can be referred to as the Xtreme console as well. This is the current operator console for the CT LightSpeed and PET Discovery ST systems. This course must be taken within 2 years from the purchase date.

34 1

CT LightSpeed Global Operators Console 6

This course will prepare the GE Field Engineer and In House engineers for servicing the new Global Operators Console 6 (GOC6). This course must be taken within 2 years from the purchase date.

35 1

CT True In One Console Service (Web) This course covers the following topics on the True in One Console: Console Models, Hardware details and mechanical layout, Installation and FRU replacement, Troubleshooting using command lines and diagnostics. This course must be taken within 2 years from the purchase date

36 1

Optima CT660 Service (web)

This upgrade course taken online is intended for Support Engineers who have previous LightSpeed VCT training. Topics covered include: New gantry display, new power saving mode, new gantry axial motor and control, new gantry covers removal and installation, safety awareness with gantry cover mounting hardware, new operators console (RIO), load from cold-Saturn detector. This course must be taken within 2 years from the purchase date or it expires without refund.

37 1

Troubleshooting Basics Service (Web)

This Course is Intended for Individuals Involved in Servicing Medical Equipment. By Taking This Course, You will Learn a Proven Process for Troubleshooting Problems with Medical Equipment. You will Also Learn How to Use Various Tools in a Troubleshooting Situation and How to Interpret Error Messages. This Course Does Not Address How to Troubleshoot Specific Products. It is Recommended That you Have Fundamental Training in a Modality Prior to Taking This Course. This course must be taken within 2 years from the purchase date.

38 1

Networking and Dicom Basic for DI Service (Web)

Training will prepare engineers on configuring and troubleshooting networks, which use the DICOM protocol for transferring patient data and how to read and use DICOM Conformance Statements.

This course covers the following:

- Introduction to 7 layer OSI and 5 layer TCP/IP protocols (Basic model only)
- Identify hardware used in networking
- Review of the most used networking devices, cables, NIC, switch and routers
- Simple network connection with 2 to 5 devices
- Dicom definitions, theory and configuration

This course must be taken within 2 years from the