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Optima CT660 128 sl system with ASiR

The Optima CT660 is GE's latest generation intelligent CT system. It is a scalable 128 slice platform including advanced innovations from our Discovery Series (TM), This means that Optima CT660 is capable of addressing your advanced clinical needs. Optima CT660 with Xstream gantry display is ready to help you deliver personalized care for your demanding patient schedule and quickly manage your unscheduled ED exams. With the Optima CT660 you get fast, high-quality acquisition at optimized dose for patients young and old, large and small, across a wide spectrum of procedures: angiography, brain, chest, abdomen, orthopedic, and more.

Key Features:

- Exclusive V-Res (TM) Detector technology providing 40mm of 0.625mm acquisitions
- Volara* XT DAS (Data Acquisition System): The Volara* XT digital DAS for faster sampling and improved image performance and reduced artifacts
- Fast coverage speed of 110mm/sec with sub-mm resolution
- Full 360 degree rotation in 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0 and 2.0(axial) seconds, ensuring short breath holds, comfortable exams and flexibility to customize protocols for unique patient needs with minimal coverage impact
- Routine thin slice scanning, as thin as 0.625mm optimizing the use of thinner images for sagittal, coronal, oblique, and volume image presentation and review
- The overlapped reconstruction feature enables 384 slices reconstruction in helical acquisitions and 128 slices per rotation in axial mode delivering improved Z-axis visualization performance relative to non-overlapped reconstruction
- Highly efficient compact geometry design delivering optimum performance of the x-ray tube and generator
- 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
- ASiR reconstruction technology may enable reduction in pixel noise standard deviation (a measurement of image noise). The ASiR reconstruction algorithm may allow for reduced mA in the acquisition

of images, thereby reducing the dose required(**).

- A reconstruction technology that may enable improvement in low contrast detectability(**)

(**) 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 physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.

Fast, User-Friendly, Simultaneous Workflow:

- Advanced Workflow Platform, the next evolution of GE's workflow platform built to help you maximize productivity.
 - Delivers up to 35 images per second (ips) reconstruction
 - Image Check delivers up to 55 images per second (ips) reconstruction (340x340 matrix)
 - Up to 10 fps network transfer rates
 - Direct Multiplanar Reformats (DMPR) that enables the move from 2D review to prospective 3D review of sagittal, coronal and oblique planes automatically
 - Data Export and Interchange that allow you to easily share images with referring physicians and patients
- One Stop ED mode: Optima CT660's exclusive 12" Xstream touch display on the gantry enables unique one stop ED scanning to streamlined ED exam workflow allowing patient selection, protocol selection and confirming exam parameters directly at the gantry, without having to leave the patients side.
- Includes reference protocols and the ability to customize your own for a total of 6,840 programmable protocols
- SmartPrep with Dynamic Transition allows low dose intermittent monitoring of intravenous contrast enhancement in a user-selected section of anatomy. With Dynamic Transition when the prescribed contrast enhancement is reached the system will automatically transition from the monitoring phase to the scan phase
- 10 Prospective Multiple Reconstructions: Up to 10 reconstructions can be pre-programmed as part of the scan protocol prior to acquisition. The operator can select different start/end location, slice thickness, interval, interval reconstruction algorithms and display fields of view for each reconstruction. Assisting to prospectively prescribing the

image reconstructions needed, even for complex trauma exams and freeing the user up to focus on the patient

- Remote tilt from the operator console to increase exam speed
- Built-in breathing lights with a countdown timer, so the patient does not have to guess how much longer to hold their breath
- New built-in 12-inch touch screen gantry display allows technologists to deliver personalized care by displaying the patient's name on it. When not scanning, the video of relaxing scenes or cartoons may have a calming effect on children or patients of all ages.
- By using One Step patient positioning on built-in 12-inch touch screen gantry display the bed provides automatic positioning according to the type of exam, reducing manual positioning and streamlining workflow
- In room start button mounted on gantry with countdown display, facilitates single technologist operation and improved departmental productivity
- GE software allows you to automate or build every task into the protocols to increase throughput
- Has up to 250,000 uncompressed 512 x 2 image files storage capacity, and 3,520 scan rotations or up to 1,500 scan data files, or up to 300 exams.

Dose Management Leadership:

- OptiDose management features: new bowtie filters optimized for adult and pediatric body exams, full 3D dose modulation, color coding for kids, tracking collimator hardware and software for x-ray beam tracking to name a few of GE's dose optimization features, all based on the ALARA principle
- Dynamic Z-axis tracking provides automatic and continuous correction of the x-ray beam shape to block unused x-ray at the beginning and end of a helical scan to reduce unnecessary patient radiation
- 3D Dose modulation - Before the scan, clinicians must select the desired Noise Index as well as the minimum and maximum mA setting. The system automatically accounts for the changing dimensions of the patient's anatomy, enabling patient to patient reproducibility in this aspect of image quality and real-time x-y-z during each scan.
- 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 during scan prescription provides the patient's dose information to the operator
- Dose Reporting provides access to the CT DIvol and DLP with the patient record prior and post exam. DICOM Structured Dose Report is also supported.
- 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

The Advanced Reconstruction breaks through existing limits on speed, image quality and flexibility to provide an optimized volumetric workflow solution from acquisition to final report and has the capability to deliver up to 16 full fidelity images per second (ips) reconstruction and 10 fps network transfer rates.

Clinical Benefits:

- CTA runoffs
- Thin slices fast; routine use of thin slices
- Organ coverage in arterial phase
- Long helical scans
- Multi-phase organ studies
- Improved multi-planar reformats with isotropic microvoxel imaging
- Fast scanning with outstanding image performance and GE's proprietary cross beam and hyperplane helical reconstruction

algorithms

- System designed for optimization of z-axis resolution and dose with 0.625mm slice thickness

System Components:

Gantry:

- Advanced slip ring design continuously rotates the generator, Performix 40 X-ray tube, detector and Volara XT digital data acquisition system around the patient.
 - Aperture: 70 cm
 - Maximum SFOV: 50 cm
 - Rotational Speeds: 360 degrees in 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.0 and 2.0(axial) seconds
 - Tilt: +/- 30 degrees, speed 1 degree/sec
 - Remote tilt from operator's console
 - Integrated breathing lights and countdown timer
 - Integrated 12-inch touch screen on gantry with workflow features
 - Integrated start scan button with countdown timer to indicate when x-ray will turn on
- Visual readout is easy to read from the tableside or from the operator console. Gantry tilt controls are located on the side of the gantry.

Laser Alignment Lights:

- Defined internal and external scan planes to +/- 1mm accuracy
- Operate over full range of gantry tilt
- Coronal light remains perpendicular to axial light as gantry tilts

Table:

- Cantilever design for easy access
- Vertical range: 43.0 cm to 99.1 cm
- Vertical scannable range: 79.1 cm to 99.1
- Horizontal range: 1,745 mm (VT1700 table) or 2,045 mm (VT2000 table)
- Horizontal Speed: up to 137.5 mm/sec
- Table load capacity: 227 kg (500 lb) +/- 0.25mm positional accuracy

X-ray Tube: Performix 40 metal-ceramic tube unit

- Performix 40 tube with 6.3 MHU of storage and capable of 72kW

operation provides increased helical performance with greater patient throughput

- Wide range of technique (10 mA to 560 mA, in 5 mA increments) gives technologist and physician flexibility to tailor protocols to specific patient needs, while optimizing patient dose, and providing the power needed to perform a broad spectrum of examinations.
- Maximum anode heat storage capacity: 6.3 MHU
- Dual Focal Spots:
 - Small Focal Spot: 0.9 x 0.7 IEC60336:2005
 - Large Focal Spot: 1.2 x 1.1 IEC60336:2005
- Maximum power: 72 kW
- Beam collimated to 56 degree fan angle

High Voltage Generator: High Frequency

on-board generator allows for continuous operation during scan.

- 72 kW Output Power
- kV: 80, 100, 120, 140 kV
- mA: 10 to 560 mA, 5 mA increments

Maximum mA for each kV Selection (large focal spot):

- 400mA @ 80kV
- 480mA @ 100kV
- 560mA @ 120kV
- 515mA @ 140kV

V-Res Detector: The V-Res detector was designed for high performance imaging. The V-res detector benefits are:

- Solid 40mm coverage per rotation
- GE's patented ceramic detector material

Volara XT Digital DAS (Data Acquisition System): The Volara XT digital DAS dramatically reduces electrical noise for improved imaging performance.

- 2,460Hz maximum sample rate
- Effective analog to digital conversion

Optima CT660 Operator Console:

- 1,792GB of total system storage
- Up to 250,000 512 x 2 images and 3,520 scan or up to 1,500 scan data

files or up to 300 exams

- 4.7 GB DVD-R/CD-R for DICOM interchange (not recommended as a long term archive)

Image Networking: Exams can be selected and moved between the Optima CT660 CT System and any imaging system supporting DICOM protocol for network send, receive and pull/inquiry.

- Standard Auto-configuring Ethernet
- Direct Network Connection
- Supports 1GB or 1000/100/10 BaseT

DICOM Conformance Standards

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

The Optima CT660 workflow platform is designed to deliver high performance in each of these tasks:

- SmartTools Simplifies Scan Setup and Includes All Reconstructions, Filming, Archiving, Transferring Propsectively
- Workflow platform built on the LINUX operating system delivers up to 35 fps reconstruction and 55 fps with Image Check, and the fastest network transfer rates of up to 10fps
- Data Export and Interchange allow you to easily share images with referring physicians and patients
- Direct MPR that enables the move from 2D review to 3D image review of axial, sagittal, coronal and oblique planes automatically
- Exam Split delivers the capability to split a series of patient images into seperate groups for networking
- Exam Rx desktop environment provides the clinical tools desired for fast, efficient control of patient studies. Exam Rx tools include patient scheduling and data entry, exam protocol selection, protocol viewing and editing, scan data acquisition, image display and routine analysis,

AutoTransfer, AutoStore, and AutoFilm

- ImageWorks is a desktop environment designed to take advantage of the Optima CT660 CT System advanced computer systems. Standard features include archive, network and manual film control, as well as some advanced image processing such as Direct multi-planar reformatting (DMPR), multi-projection volume rendering (MPVR) and display. The ImageWorks desktop also provides a gateway for DICOM 3.0 image transactions, either through a local area network, or via DICOM-formatted media
- Volume Viewer includes Volume Analysis, Volume Rendering and Navigator software. This combination allows the user to render volumetric data in three dimensions for use in analysis of patient condition, i.e. CT Angiography (CTA), gives more information on the spatial relationships of structures than standard 3D, allows the translucent visualization of structures for improved problem solving, can perform "virtual endoscopies" of air and contrast filled structures. Enables 3D reformats in any plane, ALL on the Xstream ready console

Scan Modes: The Optima CT660 system can perform virtually any clinical application due to its wide variety of scan modes. Helical scan mode offers continuous 360 degree scanning with table incrementation and no interscan delay. Axial scan mode allows for up to 64 contiguous axial slices acquired simultaneously with each 360 degree rotation.

- Helical scanning pitches: 0.516:1, 0.984:1, 1.375:1
- Retrospective reconstruction image thicknesses: 32 x 0.625, 64 x 0.625, 128 x 0.625*

* Available only with Overlapped Reconstruction option (axial mode & 40 mm coverage)

Scan Enhancements:

- Anatomical programmer: a ten region anatomical selector allows quick and easy access to user programmable protocols and a separate selector for adult and pediatric exams with greater than 6,840 protocol storage available.
- Protocols include preset scan time, kV, mA, scan mode, image thickness and spacing, table speed, scan FOV, display FOV and center, recon algorithm, and special image acquisition and processing options like DMPPR

- Any scan parameters may be edited for each scan or all scans - either before or during an exam. The number of scans may also be easily changed
- AutoScan: Automates longitudinal table movement and start of each scan
- Auto-Voice: 3 preset (9 languages) and 17 user defined messages automatically deliver patient breathing instructions, especially useful for multiple helical scanning
- Trauma Patient: Allows patient scans and image display/analysis without entering patient data before scanning
- Reconstruction Algorithms: Soft Tissue, Standard, Detail, Chest, Bone, Bone Plus, Lung, and Edge

For US and Canadian Customers, this quotation includes access to the DoseWatch Explore application for a period of time concurrent with the system warranty. DoseWatch Explore is an introductory dose management software application that provides you secure access, via any PC with internet access, to dose and protocol data from this system. An InSite connection to the system and completion of the registration process is required to use the DoseWatch Explore application.

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.

Siting Considerations: See the Pre-Installation manual for details of the siting requirements for the Optima CT660.

This product is a CE-compliant device that satisfies IEC60601-1:1998 and applicable collateral and particular standards, including regulations regarding Electro-Magnetic Compatibility (EMC) and Electro-Magnetic Interference (EMI), pursuant to IEC-60601-1-2:2004.

This product complies with NEMA Standard 29-2013 / MITA Smart Dose Standard.

English Keyboard Kit

1 Optima CT660 Standard cable set

Optima standard cable set

1 VT2000 Table

The CT system 2000 table enables volume scanning. Key features of the VT 2000 table include: 500 lb weight capacity, 2000 mm scannable range, 175 mm/sec travel time, real-time position control to support advanced application such as SnapShot Pulse, VolumeShuttle, and Volume Helical Shuttle.

1 CT Operator Console Desk

The Freedom workspace is an ergonomic working environment specifically designed for use with the GE Healthcare imaging systems. The sleek table design enables the efficient use of space while enhancing clinical workflow and technologist comfort.

The Freedom workspace provides a minimalist footprint to improve patient visibility and giving the user easier access to patients in the imaging suite.

It offers sit/stand and horizontal/vertical monitor flexibility. It can also help reduce noise and heat with remote location options of the console. The non-adjustable Freedom workspace version is 1300mm long x 895mm wide x 850mm height and weighs 55.8kg.

1 SmartView Fluoro with Monitor

SmartView(TM) Fluoro Package Includes In-Room Monitor and Boom

SmartView Enables an Imaging Mode for Performing Biopsies and Other Interventional Procedures. An In-room Monitor, Hand Held Controller, X-ray Exposure Foot Pedal and Cradle Handle Provide In-room Control for Image Acquisition and Image Review. The Hand Held Controller Provides the Operator with Controls to Prepare the Scanner for Imaging, to Turn Alignment Lights On and Off, to Move the Cradle, Review Images and Adjust the Window Width and Level; and the Foot Switch Provides In-room Control of X-ray On.

Image Display presents single or multi real time image display, a Free Viewport and timers for the remaining and accumulated exposure time and estimate of dose. The Display Control Panel Provides Roam, Zoom, Magnify, Measurement, Annotation, Grid, Image Orientation, and Save Screen Image

Review Capabilities. Data Acquisition Includes a 4,8 or 16 row Data Acquisition Mode Using 4x0.625mm, 8x0.625 mm 16x0.625mm Detector Configurations and a 3i (8 FPS) or 1i (12 FPS) Reconstruction Mode to Create 1.5 (3i only), 2.5, 5 and 10mm (1i only) thick 340 Matrix Images. All Scan Fields of View and Reconstruction Algorithms are Available with 0.4, 0.5, 0.8s and 1.0s Gantry Rotation Speed. Tilted acquisition capability

Customers upgrading LightSpeed VCT systems require a GOC6 or higher console platform.

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Low Dose Cardiac Package

The Low Dose 5-Beat Cardiac package allows the user to acquire cardiac imaging exams with retrospective or prospective gated acquisitions utilizing up to 0.35 second rotation speed for excellent cardiac exams. This package contains the following items necessary for CT Coronary Angiography:

SnapShot Imaging can be used to acquire ECG Gated CT Images of the coronary arteries, cardiac anatomy and various other applications that require temporal resolution to reduce heart motion effects. The SnapShot Imaging package includes hardware and software necessary for cardiac studies with CT.

SnapShot imaging is designed to produce optimized cardiac images with minimum cardiac motion effects. Three different imaging acquisition techniques are available for the user

- SnapShot segment - single sector algorithm with temporal resolution (TR) of 175ms
- SnapShot Burst - dual sector algorithm with TR of 87ms
- Snapshot Burst Plus - 4 sector algorithm with TR of 43ms

Xtream 12" Gantry and Operator Console ECG Trace:

- The ECG trace provided by the Ivy monitor will be displayed on the CT gantry and operator's console with this option. Allowing the user to display the live trace of the patient's heart rate and display the actual location of the window of time when the images are being acquired. It will provide easy access to patient cardiac output status and assist in providing visual feedback for optimum acquisition start.
- 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 with irregular heartbeat or suboptimal triggers.

Cardiac Enhancement Filters:

- Noise reduction filters, providing three levels of image filtration while preserving of edge image detail coupled with patient dose reduction of up to 30%.

ECG Dose Modulation:

- ECG gated dose modulation reduces patient dose by modulating x-ray technique during acquisition based on heart phase.

SnapShot Pulse is a cardiac scanning technique that helps reduce patient dose by up to 83%, and improves cardiac workflow, with uncompromised 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. In essence, the technique captures a complete picture of the heart using a series of three to four snap shots taken at precise patient table positions and precisely timed to correspond to (relative to conventional cardiac CT acquisitions).

SnapShot Pulse helps improve workflow by reducing the size of image set to be reconstructed, reviewed and post processed. A typical SnapShot Pulse series consists of 280 to 400 images, compared with up to 3,000 images in a typical helical cardiac scan series. Since there's a smaller number of images to reconstruct, SnapShot Pulse takes less time, yet still delivers the same amount of information as a helical cardiac exam.

The Ivy Monitor comes in the cardiac package. It will be used to monitor patient cardiac output and synchronize acquisition with that output.

1 Additional license Required for Non-GE X-ray tubes

Tube license software required for use with a third party x-ray tube. The use of a 3rd party x-ray tube will require an additional license for the activation and continued use of the following options: ASiR, Volume Helical Shuttle, Gemstone Spectral Imaging, High Definition Scan Mode, Cardiac, Enhanced Rotor Management (may vary by product). Does not include installation.

1 Xstream Injector Interface kit - Class IV

Cabling and CT Scanner software required for use with Integrated Injectors.

- 1 In-Room Monitor Cable
In Room Monitor Cable for RIO console
- 1 2 Phase Uninterruptible Power Supply
Uninterruptible Power Supply
Exide Uninterruptible Power Supply. Custom Designed Firmware to Interconnect with LightSpeed Pro, LightSpeed RT, Optima and BrightSpeed Systems. The UPS Primarily Backs Up the System Computer Functions. Bridges Short Power Outages and Provides Time for Crossover from Normal Main Power to Emergency Power. Must be Located Within Eight Feet of the PDU.
- 1 CT Service Cabinet
Service cabinet for system accessories storage
- 1 90 Amp Main Disconnect Panel for CT
The 90Amp CT system main disconnect panel (MDP) serves as the main facility power disconnect source installed ahead of the system PDU. The MDP will disconnect system power on first loss of incoming power, helping to prevent damage to system components. It also includes an automatic restart control circuit which restores power to the CT System PDU after a power outage.
- Can reduce installation time and cost by eliminating delays in obtaining individually enclosed components and on site assembly (ex: main circuit breaker, feeder overcurrent devices, magnetic contactors and UPS emergency power off are combined into a single panel)
 - Configuration flexibility - can be used as a stand-alone main disconnect or with the optional partial system UPS. (On systems where the optional partial system UPS is used the main disconnect panel also provides NEC mandated emergency power off control to both the PDU and UPS)
 - Designed and tested for GEHC CT products
- Specifications:
- Automatic restart incorporates an adjustable time delay to delay main power until the power has stabilized for 5 seconds
 - One flush wall mounted remote emergency off pushbutton furnished with each system

- UL, cUL and CE labeled

1 Medrad Stellant D Dualflow Ceiling Mount for Medium Post - Integrated Injector ISI Ready

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.

1 CT Table Slicker with Cushion - 2000 Systems (2-pc Set)

CT Table Slicker with Cushion - 2000 Systems (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

1 CT Footswitch Slicker - 2000 & 1700 Systems

CT Footswitch Slicker - 2000 & 1700 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

1 6 Day CT TiP Onsite System Training

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.

1 TiP Training Package 4 Onsite Days Plus 10 Hrs TVA

TiP Training Package 4 Onsite Days Plus 10 Hrs TVA

TiP Applications training package includes 4 days onsite delivered in one visit and 10 hours TiP Virtual Assist

Training is provided from 8AM to 5PM, Monday through Friday. Includes T&L expenses.

This training program must be scheduled and completed within 36 months after the date of product delivery.

1 4 Days Ct Onsite

4 Days CT TiP Onsite Training

Four Days CT Onsite Training provided from 8AM to 5PM, Monday through Friday. Includes T&L expenses. Days provided consecutively.

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

6 TiP HQ Class Optima CT660 - Full Service

TiP HQ Class Optima CT660 - 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 Optima CT660 system.

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

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CT LS 7X & OPTIMA 660

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.

6

Meals And Lodging Expense

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, plus 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.

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Airfare Expense

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

1 OPTIMA CT660 SERVICE (WEB)

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.

1 SERVICE PACK 20Y

Service package delivered for the lifetime of the equipment (20 years)

1 AW SERVER XL STANDALONE

AW Server 3.1 XL Standalone

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, it also serves as a workflow engine enabling optimal collaboration among physicians and allowing 3D visualization to be leveraged easily to diagnose diseases quickly and make sound decisions. 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 in this catalog:

- Unlimited client installations.
- Up to 16,000 concurrent slices (512 x 512) can be loaded across all

users of the server (advanced applications require concurrent licenses).

- 6 concurrent AW Volume Viewer licenses.
- Dual monitor client support.
- 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, flythroughs 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.
- 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 between AW workstation (requires VolumeShare2 or later), server and Centricity AW Suite.
- Enterprise directory integration for single sign on user authentication with audit trails.

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 any time 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 eight-core Intel Xeon E5-4617 CPU's
- 64GB RAM.
- Mirrored 146GB disk for OS.
- 1 Gbps NIC for DICOM and client traffic.
- Dedicated Embedded Lights Out Manager (LOM).
- Fully redundant power and cooling.
- Rack-mount (4 CPU) server.
- Operating System: GE HELIOS 6.
- 6TB of direct attached image storage.

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).
- 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:

- Windows 7 SP1 32 and 64 bit
- Windows 8.1 32 and 64 bit
- Mac Parallels (Mac OS X 10.9, Parallels 9, Win 7 SP1 32 bit)

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 required for optional UPS) information can be found in terms and conditions.

Concurrent licenses for supported advanced applications are optionally purchasable.

1 STANDALONE INSTALLATION S

Standalone Installation Set

1 AW HIGH TIER RACK

AW Server High Tier Rack

1 LUNG VCAR SFL

Lung VCAR Single Floating License for AW Server 3.1 or later.

Volume Computer Assisted Reading (VCAR) takes a new direction in application design, leveraging (exploiting) the power of high resolution, volume scanning. This new technology is enabled by the Automatic Detection, Precise Segmentation and Interactive Quantitative Analysis that

enhances analytics and improves data management. The result being better informed decisions and improved patient management.

Key features include:

- Digital Contrast Agent (DCA)- Automatically visualizes and highlights abnormal and potentially cancerous pulmonary solid nodules
- Bookmarking Tools for ease of image review and analysis
- Correlated Workflow-Synchronized 2D, DCA and Segmented Analysis
- One Click Solid Nodule Segmentation from vessels and pleural wall
- Segmentation Analysis of all nodule types Solid, Non-Solid and Part Solid
- Automatic Nodule Analysis Provides:
 - Percent Growth
 - Doubling Time
 - Volumes
- Automatic Segmentation of both the right and left lungs thus reducing the visual distractions associated with anatomy not of interest
- Cross Reference/Correlation Bar Provides a quick reference to aid in the localization of a nodules global location
- Image Display Tools for comparison of initial and follow-up exams
- Automatic Bookmark Propagation from previous to current or current to previous exams
- Automatic Image Registration for image review synchronization
- Temporal Statistics Display for fast informed decisions
- Customizable Personal Review Layouts
- Interactive Patient Reporting (DICOM SR) Provides both structure and flexibility

Lung VCAR requirements: AW Server 3.1 or later

CARDIQ XPRESS 2.0 REVEAL

Upgrade to CardIQ Xpress Reveal Single Floating License from previous release

CardIQ Xpress Reveal is an integrated post processing image analysis software for Cardiovascular CT on GE's Advantage Workstation.

The optional CardIQ Xpress Reveal software can be used to effectively display, reformat and analyze 2D, 3D, and GSI CT images for qualitative or quantitative assessment of the anatomy of the heart and coronary artery

vessels from single or multiple cardiac phase image data sets. When used with CardIQ Function, CardIQ Xpress Reveal can also provide functional assessment including relative perfusion information.

CardIQ Xpress Reveal can be launched directly or from within Volume Viewer applications using axial, helical or GSI CT images; including images created using the SnapShot Freeze intelligent motion correction option. It provides the user with both single and multiple cardiac phase analysis protocols for single energy and spectral energy CT images.

The software includes a variety of different 2D, 3D or reformatted protocols including: 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, color mapped plaque density measurements, 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.

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 combines simplified user workflow with SnapShot Freeze intelligent motion correction imaging.

- Pre-processing the images & models including SnapShot Freeze exams, for faster review
- 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 allows the user to:

- Rendering and display of 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

- Measurements of coronary arteries including stenosis and stenosis length, and density
- 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
- Extraction of the left ventricle and automated ejection fraction and volume measurements
- 4D aortic valve and mitral valve views with one touch
- Ability to select different protocols without exiting the application
- Pre-defined VR IVUS-like views for virtually determining plaque compositions
- 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 relations to the heart chambers with the ability to fade out the chambers of the heart
- Oblique reformat views in the standard cath angles for easy 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

System requirements:

- AW Workstation with VolumeShare6 on HP 8400 or later with a minimum of 16GB RAM or a HP Z800 with 24GB of RAM
- Auto Launch and Preprocessing Option
- 2 monitor configuration
- Color Landscape monitor

2

CONVERT CARDIQ FUNCTION X

Convert CardIQ Function Xpress to Single Floating License for AW Sever 3.1

Conversion from Node Locked to Single Floating License converts an existing node locked license owned by the customer to Single Floating License. This conversion will entitle you to additional single floating license purchases for this application. Requires proof of ownership by providing host ID of the AW which has the node locked license installed. Upon conversion, existing mode locked license will be removed from the AW.

Included with this order is the Conversion of Node Locked to Single Floating License.

3

CONVERT CT PERF 4D NEURO

Convert CT Perfusion 4D Neuro to Single Floating License for AW Server 3.1

Conversion from Node Locked to Single Floating License converts an existing node locked license owned by the customer to Single Floating License. This conversion will entitle you to additional single floating license purchases for this application. Requires proof of ownership by providing host ID of the AW which has the node locked license installed. Upon conversion, existing mode locked license will be removed from the AW.

Included with this order is the Conversion of Node Locked to Single Floating License.

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Convert Smartscore 4.0 from Node Lock to Floating License Ready

Convert Smartscore 4.0 to Floating License Ready.

Smartscore 4.0 Conversion from Node Locked to Smartscore 4.0 Floating License Ready.

Conversion from Node Locked to Floating License Ready converts an

existing node locked license owned by the customer to Floating License Ready. This conversion will entitle you to additional single floating license purchases for this application. Requires proof of ownership by providing host ID of the AW which has the node locked license installed. Upon conversion, existing mode locked license will be removed from the AW.

Included with this order is the Conversion of Smartscore 4.0 Node Locked to Floating License Ready.

For AW VolumeShare 2

4

CONVERT VESSELIQ XPRESS A

Convert VesseliQ Xpress and Autobone Xpress to Single Floating License for AW Server 3.1

Conversion from Node Locked to Single Floating License converts an existing node locked license owned by the customer to Single Floating License. This conversion will entitle you to additional single floating license purchases for this application. Requires proof of ownership by providing host ID of the AW which has the node locked license installed. Upon conversion, existing mode locked license will be removed from the AW.

Included with this order is the Conversion of Node Locked to Single Floating License.

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SERVER P.M. & RMT NETWORK

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.

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AW Server Advanced Installation Services

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

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2 DAY AW SERVER

2 Day AW Server Training

Two Day TiP AW Server Training

One 2-day onsite applications training visit for AW Server. Includes T&L expenses. Days provided consecutively.

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

Options

Qty	Description	Ext Sell Price
1	<p>INTEGRATED REGISTRATION -</p> <p>Single Floating License of Integrated Registration - Full Fusion Package for AW Server 3.1</p> <p>Integrated Registration is designed to provide easy comparison of three dimensional (3D) anatomical images from Computed Tomography (CT), MRI (Magnetic Resonance Imaging), PET (Positron Emission Tomography), Single Photon Emission Computed Tomography (SPECT) and X-Ray Angiography (XA)*.</p> <p>It allows registration and fusion between two volumetric acquisitions, which come from either the same or from different acquisition modalities.</p> <p>Integrated Registration is available on xw8400 and higher. Current Fusion xw8400 users can easily upgrade to Integrated Registration through a software upgrade.</p> <p>Major features and enhancements are:</p>	

- Ability to combine any two of the 5 modalities together.
- Automatic propagation of registration across series acquired in the same patient exam (i.e. same frame of reference) and to any series from any loaded exam that have been manually grouped together.
- Full compatibility of the 3 different registration methods: automatic, manual and landmark that can be combined together to provide an optimal result.
- 2D, 3D and hybrid 2D/3D Fusion capabilities.
- Access to Volume Viewer** functionalities including MPR, Slab and oblique reformations, triple oblique easy definition, Volume Rendering, 3D display, distance and ROI measurements. (The ROI measurement only work on the rigid registered images, not on the non rigid registered images), layout management, segmentations, film and save.
- Ability to save registered data as new DICOM series or as Registered DICOM object (except from SPECT saving which is currently a limitation).
- Ability to draw and save contours as RTSS DICOM objects.

Summary of operation:

- User loads DICOM 3 CT, MR, PET, SPECT and/or XA data into a Integrated Registration protocol.
- Registration is performed based on reference and moving series selection.
- User reviews the quality of the registration with visualization tools and validates results.
- Optional: user defines and saves the contours of structures of interest.
- Registration results are saved.

* For XA modality series, Integrated Registration currently supports only the 3D X Ray Angiography (i.e., 3D X-Ray Angiography images stored as CT Image Storage DICOM objects) images acquired with GE Innova equipment and reconstructed with the Innova3DXR application.

OncoQuant Single Floating License for AW Server 3.1

OncoQuant is an oncology workflow enhancement tool that provides multi-modality image and dataset reviews. It provides user-friendly tools to follow lesion size over time, apply study criteria and provide tabulated results to the Oncology team. It is an optional package available on both the GE AW Server 3.1.

OncoQuant is fully integrated within the standard Volume Viewer 5 protocols and therefore works as a toolset rather than a standalone application. Because of this tight integration, OncoQuant, as a product, benefits from the new Volume Viewer 5 improvements.

Major features and enhancements are:

- An integrated kit of Oncology Tools compatible in any standard reading protocol in Volume Viewer 5 to aid routine oncology reads.
- Adaptable Workflow for standard clinical reading to advanced research using tools supporting RECIST 1.0, 1.1 and WHO criteria.
- A Multi-Modality reading platform allowing comparison and correlation of CT, MR, PET/CT, and 3D X-Ray data.

Features:

- Automatic Multi-Modality full coverage and regional registration (CT, MR, PET, 3D X-Ray) if the user has purchased Integrated Registration.
- Dedicated smart PACS-like layout for facilitating oncology review and follow-up studies from the Volume Viewer 5.
- Full access to entire set of 3D visualization tools.
- One consistent contouring tool for all modalities (CT and MR images and PET SUV's).
- Benefit from Lung VCAR algorithms and DCA as a tool inside the routine oncology workflow if the user has purchased Lung VCAR.
- Advanced support for output with new oncology save state.

- New intuitive Summary Table of Findings supporting guided follow-up for standard or more advanced studies like RECIST.
- Export statistical results (for excel) and images to USB and in DICOM to the filmer.

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THORACIC VCAR SFL

Thoracic VCAR Single Floating License for AW Server 3.1 or later.

Thoracic VCAR is a CT post processing software package designed to provide the user with a set of tools that allows the physician to make quantitative measurements that can assist in the diagnosis of lung diseases like COPD. The software combines segmentation of the lung and airways with analysis tools to provide advance analysis of the lung parenchyma and airways. The analysis comprises of 2D and 3D wall thickness and diameter measurements which provide an integrated approach to a comprehensive evaluation of a CT lung exam.

Key features include:

- Quick basic 2D review with one-click measurements of wall thickness derived from airway and lumen diameters with display of inner and outer contours for added reference
- Simple workflow with segmentation of right and left lung and airways
- One touch 3D airway tracking with measurements for airway analysis
- Emphysema Protocol-Segments the left and right lung excluding airways. Abnormal regions can be visualized and measured as a percentage of the whole by applying user selectable thresholds
- Lobe segmentation - Segmentation of the left and right lung with additional tools to separate and visualize by distinct lobes. Once segmented they can be displayed with color overlays with volumes displayed by lobe
- Airway analysis - Segments the airways from the trachea to the bronchi, which is tracked for lumen analysis

- Report Tool - Standard feature. The report can be printed, saved as a structured report, made into a secondary capture to be sent to PACS and exported through the web.

System requirements:

- AW Server 3.1 or later

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TAVI ANALYSIS AWS

TAVI Analysis Single Floating License for AW Server 3.1

TAVI Analysis is a post processing software application to aide in the evaluation of CT Datasets acquired for TAVI (TAVR) procedures. CT provides information that is important for successful TAVI/TAVR procedures. CT is used to help determine aortic annulus size, to guide selection of appropriate valve, provide dimensions of the entire aorta, help determine the access path for the catheter and give guidance for C-arm angulation for deployment of the device.

GE's TAVI Analysis software provides a streamlined, guided workflow to enable efficient consistent work-ups of your TAVI studies with connectivity directly to the interventional suit

Key features of the TAVI Analysis package:

- Automatic segmentation of the aorta with calcific areas highlighted
- Guided workflow for acquiring all measurements needed for aortic annulus sizing
- Ability to work with multi-phase data
- One Click perpendicular views to demonstrate working angles for valve deployment in the cath lab.
- Guided vessel tracking tools to allow for easy planning for any access route (e.g. femoral, subclavian, transapical)
- Summary Table for easy exporting of measurements
- Direct communication with Heart Vision 2 software for easy transition of processed CT data to the cath lab
- 3D and calcium overlay VR models to aide in visualization during interventional procedure.

Requirements:

- VesselIQ Xpress and Autobone Xpress are pre-requisites for the TAVI Analysis package.