[redacted] Spectral CT

[redacted]

Line #	Part #	Description	Qty	Each	Price
1	[redacted]	[redacted] Spectral for CT	1	[redacted]	

[redacted] Spectral CT Configuration

The [redacted] Spectral CT is a first-of-its-kind innovation that allows you to use color within CT images to identify the composition of what you see. Through this quantitative approach you add spectral resolution to your image quality. So you not only get the anatomical information that you are used to with CT, but also uncover the characterization of structures based on material content.

[redacted] Spectral CT allows for:
• On-demand retrospective data analysis with your traditional workflow and without a special acquisition mode.
• Takes the guesswork out of multi-energy acquisitions - making it easy to use, and allowing for routine spectral use.
• Retrospective spectral analysis made possible through the [redacted] platform, so you can experience spectral CT without the need for any special protocols.
• Spectral imaging benefits without complexity and at low dose.

The [redacted] Spectral CT was built from the ground up for spectral imaging, so now every scan can be spectral on demand.

The [redacted] Spectral CT family is built from the ground up for spectral imaging. Key features include:
• On-Demand Spectral Results
• NanoPanel Prism Detector
• [redacted]
• HyperSight Spectral Reconstruction
• IMR
• [redacted]
• Rate Responsive CV Toolkit
• Step & Shoot Complete
• 40 mm z-axis coverage
• AirGlide [redacted] with 0.27 second rotation time
• iMRC x-ray Tube with 120 kW generator
• mA range: 10-1000 mA
• 80, 100, 120, 140 kVp tube voltages (Spectral results available on-demand for 120 kVp and 140 kVp acquisitions)
• [redacted] [redacted] Collimator
• Operator console with dual monitor configuration
• Console UPS
• Long table

See [redacted] Spectral CT product datasheet for descriptions and disclaimers of aforementioned features and capabilities.

Features

[redacted] Spectral CT					
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On-Demand Spectral Results
On demand retrospective spectral data analysis means that with the [redacted] Spectral CT, spectral results are available to clinicians anytime, virtually anywhere (spectral results available on-demand for 120 kVp and 140 kVp acquisitions). No special mode is required. Retrospective spectral analysis is made possible through the [redacted] platform, so you can experience spectral CT without the need for special protocols. You scan as you normally do and the spectral information is there, at your fingertips, when you need it. Now with the [redacted] Spectral CT, every scan can be spectral on demand.

[redacted] *Prism Detector*
Through the [redacted] detector-based spectral approach facilitated by advancements in materials science, this iconic technology allows for:
• On-Demand Spectral Results
• [redacted] Prism allows for high light output and low cross-talk.
• Top scintillator thickness is optimized for energy separation and low-energy imaging noise, while the bottom scintillator absorbs [redacted] of the high-energy spectrum.
• Simultaneous detection in both time and space
• High light output at low energy

[redacted] is an advanced platform that delivers focused innovations to facilitate patient-centered imaging, now and in the future. This powerful [redacted] based platform will put our customers in control of innovative solutions that drive confidence and consistency through personalized patient- centric workflow, increase the ability to do complex and advanced procedures with ease and efficiency. [redacted] removes unnecessary complexity and allows our customers to drive confidence and consistency [redacted] and prepares for future innovations that will help improve the care being delivered to the patient.

[redacted] are the evolution of the scanning protocol. With [redacted] the results are planned, not the acquisition as traditionally done in CT; this reduces decision points and clicks, saves time and improves scan-to-scan consistency. [redacted] can include axials, coronals, sagittals, MPRs, MIPS, and other results, all of which will be automatically reconstructed and can be sent off to where they will be read with no additional work required by the operator.

[redacted] X-ray Tube with 1 [redacted] generator
- Segmented anode and direct liquid cooling allow high-throughput scanning
- Smart Focal Spot doubles the number of projections for high image quality
- [redacted] *Bearing* Precise anode rotation stability for virtually motion-free, focal spot for high image quality

[redacted] [redacted]
- Floats on a frictionless cushion of air for high-speed stability
- [redacted] second rotation time

[redacted] *Collimator*
Helps manage delivered dose by eliminating start of scan and end of scan radiation not contributing to image formation in spiral scanning.

Reconstruction
[redacted] *reconstructor*
[redacted] Spectral CT leverages the computational power behind IMR to achieve fast creation of spectral results. This reconstruction engine enables conventional image reconstruction in less than 3 minutes with IMR.

*IMR**

[redacted] Spectral CT					
Line #	**Part #**	**Description**	**Qty**	**Each**	**Price**

Iterative Model Reconstruction (IMR) sets a new direction in CT image quality with virtually noise-free images and industry-leading low-contrast resolution. Moreover, for the first time physicians are also able to simultaneously combine image quality improvements on conventional images with significantly lower doses.** This improvement is a breakthrough made possible through [redacted] first iterative reconstruction built on knowledge-based models.

* Only applies to conventional images.
** In clinical practice, the use of IMR 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. Lower image noise, improved spatial resolution, improved low-contrast detectability, and/or dose reduction, were tested using reference body protocols. All metrics were tested on phantoms. Dose reduction assessments were performed using [redacted]mm slices and tested on the [redacted]Laboratory), using human observers. Data on file.

[redacted]improves image quality† through artifact prevention and increased spatial resolution at low dose. The design seamlessly integrates into your CT department, and provides you the look and feel of conventional, higher-dose images without long processing times.

† Improved image quality is defined by improvements in spatial resolution and/or noise reduction as measured in phantom studies.

[redacted]*Reconstruction Algorithm* – [redacted]
[redacted]patented [redacted]Reconstruction Algorithm ([redacted]enables true three-dimensional data acquisition and reconstruction in helical scanning.

Fast Preview
Display real-time [redacted] matrix image reconstruction and [redacted] mm contiguous slice display with helical acquisition or off-line reconstruction. Images can be modified for window width and level, zoom, and pan prior to larger matrix reconstruction at the end of the acquisition.

Clinical Enhancements

[redacted] *Viewer*
The [redacted] Viewer utilizes the spectral results and extended data that is produced by the scanner to provide advanced, user-oriented imaging tools.

[redacted] enables low-dose, prospectively ECG-triggered, axial thoracic imaging. [redacted] allows gated, submillimeter, isotropic imaging of the entire thorax (up to [redacted]cm transaxial field of view), including the coronary arteries. Arrhythmias are managed in real-time using proprietary, prospective-detection algorithms to pause acquisition during unstable heart rhythms.

[redacted]*Toolkit*
Enables cardiac imaging and includes an ECG monitor, Retrospective Tagging, Prospective Gating, the Cardiac Viewer, Heartbeat-CS, and CT Reporting. Uses [redacted]exclusive Adaptive Multicycle Reconstruction algorithm to enhance temporal resolution — as low as 34 ms. Includes automatic arrhythmia detection and management.

[redacted]rotation provides oustanding temporal resolution in advanced clinical

applications such as coronary artery imaging, cardiac perfusion and other high-speed, motion-free imaging. The higher speed especially benefits prospective gating and [redacted] Cardiac.

[redacted] *Cardiac*
ECG-triggered dose modulation reduces tube current up to [redacted] during acquisition of non-desired phases (estimated overall dose reduction of [redacted] for single-phase, end-diastolic imaging). For example, only one phase may be required for coronary CTA, and the system will reduce the mA during the other portions of the acquisition.

Retrospective Tagging
[redacted] Retrospective Tagging allows the CT system to acquire a volume of data while the patient's ECG is recorded. The acquired data is "tagged" using [redacted] and reconstructed retrospectively at any desired phase of the cardiac cycle. This phase selection is accomplished using the [redacted] Variable Delay Algorithm, which automatically finds the consistent phase for cardiac CT imaging.

Prospective Gating
Prospectively triggers axial scans using [redacted] Variable Delay Algorithm for advanced cardiac imaging.

Integrated ECG Monitor
[redacted] advanced ECG monitor is used for gated cardiac scans. Integrated design reduces the need for an additional ECG monitor and stand in the scan room.

[redacted] *Reconstruction ([redacted] Cardiac)*
[redacted] patented [redacted] Reconstruction Algorithm ([redacted] enables true three-dimensional data acquisition and reconstruction in both axial and helical cardiac scanning.

[redacted] *Viewer*
A comprehensive cardiac review application that allows quick visualization of one or more cardiac phases, synchronization of multiple cardiac phases with interactive slab-MIP tools for review purposes, cine mode for cardiac axes views and a calculation of End Systolic Volume (ESV), End Diastolic Volume (EDV), Cardiac Output (CO), and Ejection Fraction (EF) for ventricular functional assessment.

Calcium Scoring
Provides Agatston, Volume, and Mass scores. Incorporates a database of greater than [redacted] asymptomatic multislice calcium scoring scans.

CT Reporting
Provides capabilities for editable paper, print, and electronic clinical reports; including display of key images and results. Reports are available for paper or electronic distribution to referring physicians, patients, or for medical records.

Dose Management
[redacted] DoseWise philosophy is a set of techniques, programs, and practices that allows optimal image quality, while protecting people in X-ray environments. The [redacted] Spectral CT platform employs a number of features that help provide dose efficiency.
[redacted] *Compliance*

This system complies with the N[redacted] Standard Attributes on CT Equipment Related to Dose Optimization and Management. The standard includes a group of CT attributes that

contribute to or help perform optimization/management of doses of ionizing radiation while still enabling the system to deliver the diagnostic image quality needed by the physician. It encompasses: [redacted]Radiation Dose Structured Reporting, Dose Check Feature (Dose Notification and Dose Alerts), Automatic Exposure Control (Dose Modulation) and Reference Adult & Pediatric Protocols.
[redacted]

Supports an operator notification in each ExamCard that will be shown if an acquisition is planned that exceeds a specified CTDIvol or DLP. In addition, an alert is available such that, if an acquisition is planned and the total exam will exceed a specified CTDIvol or DLP, the operator will be required to enter his or her name and (if configured) a password to proceed, or the operator can adjust the scan parameters. Compliant with [redacted].

[redacted]*Structured Report for Dose ([redacted]SR)*

Dose SR complies with the IEC, [redacted]PS and IHE standards for dose reporting. The report includes CTDIvol and DLP dose values. These can be transferred to external systems such as HIS/RIS, PACS, or dose registries.

Locking Protocols
Prevents unapproved modification of scanning protocols through password-protection.

Dedicated Pediatric Protocols
Developed in collaboration with top children's hospitals, age-based and weight-based infant and pediatric protocols enhance image quality at low dose.

[redacted]*ACS (Automatic Current Selection)*
Personalizes the dose for each patient based on the planned scan by suggesting the lowest mAs settings to maintain consistent image quality at low dose throughout the scan.

[redacted]*Z-DOM (Longitudinal Dose Modulation)*
Automatically controls the tube current, adjusting the signal along the length of the scan, increasing the signal over regions of higher attenuation (e.g., shoulders, pelvis), and decreasing the signal over regions of less attenuation (e.g., neck, legs).

[redacted]*3D-DOM (Three-dimensional Dose Modulation)*

3D-DOM combines angular and longitudinal patient information to modulate dose in three dimensions (x-y-z-axis). It incorporates modulation of tube current-time product (mAs) according to changes in individual patient's size and shape in the transverse (x-y-axis; angular) direction during helical scans, in addition changes in the craniocaudal or caudocranial (z-axis; longitudinal) direction, as the tube rotates.

Dose Displays
- Volume Computed Tomography Dose Index (CTDIvol)
- Dose-Length Product (DLP)
- Dose Efficiency Warning

Scan and Image Acquisition

Scan Ruler
Provides a visual, highly interactive view of the entire procedure that allows 1-click updates to important study events.

Spiral Scanning
Multiple contiguous slices acquired simultaneously with continuous table movement during scans allowing for multiple, bidirectional acquisitions.

Axial Scanning
Multiple-slice scan with incremental table movement between scans.

Smart Focal Spot
Doubles the in-plane and longitudinal data sampling density from the detectors effectively doubling the number of detectors and provides high spatial resolution in axial and spiral scanning.

Test Injection Bolus Timing
Establishes the appropriate contrast injection delay time using a test injection. A real-time graph of the enhancement in a selected region of interest is displayed. The delay time is then selected to provide ideal peak contrast enhancement and reduced contrast usage.

Bolus Tracking
An automated injection planning technique that permits a user to monitor actual contrast enhancement and to initiate scanning at a pre-determined enhancement level. Combine with SAS for full automation.

[redacted] Start allows the injector to communicate with the scanner. This allows the technologist to monitor the contrast injection and to start the scan (with a predetermined delay) while in the scan room.

NOTE:
• Costs to upgrade an approved injector and any cabling is t he responsibility of the user.
• Contact [redacted] to verify compatibility with a specific injector.

Image Management, Storage, and Filming

[redacted] 3.0-compliant image format. Lossless image compression/decompression is used during image storage/retrieval to/from all local storage areas. Images can be auto-stored to selected archive media.

[redacted] *DVD/CD writer*
Stores [redacted] images and associated image viewing software on DVD/CD media. Images on these DVD/CDs can be viewed and manipulated on PCs meeting the minimum specifications. Ideally suited for individual result storage and referring physician support.

Filming
Allows the user to set up and store filming parameters. Pre-stored protocols can be set to include auto- filming. The operator can film immediately after each image, at the end of a series, or after the end of a study, and review images before printing. The operator can also automatically film the study at three different windows and incorporate Combine Images functionality to manage large datasets. Basic monochrome and color [redacted] print capability are supported.

Networking
Supports 10/100/1000 Mbps (10/100/1000 BaseT) networks. For optimal performance, [redacted] recommends a minimum 100 Mbps network (1 Gbps preferred) and for the CT network to be segmented from the rest of the hospital network.

[redacted] *Connectivity*
Full implementation of the [redacted] 3.0 communications protocol allows connectivity to [redacted] 3.0 compliant scanners, workstations, and printers; supports IHE requirements for [redacted] Connectivity.

Operator Console, Patient Handling, and Setup

The operators' console includes the necessary hardware to use the scanner including host computer, cabinets, dual monitor configuration, and control box. The system provides applications that assist clinicians to improve workflow and planning as well as post processing analysis and review to help you quickly gain the desired view. All of these combine in a graphical interface that allows you to easily execute scans and analyze images.

Automatic Scan
Enables automatic execution of pre-planned studies, reconstruction, background image archiving to local or remote storage devices, without operator intervention.

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[redacted] *Control Panels*
Touchscreen interface with integrated ECG display. Audio notification and visual countdown 10 seconds before X-ray On so that operator and staff can exit room before X-ray On**.**

Breathing Lights and Patient Aperture Panel
Visual display of breathing instructions coordinated with recorded breath hold instructions (Auto Voice) to improve the patient's experience and compliance.

Intercom System and Autovoice
The intercom system provides two-way communication between the scan room and the operator console. Additionally, a standard set of commands for patient communication before, during and after scanning is available in several pre-selected languages. Customized messages can also be created.

Dual Surview Planning
Provides flexibility in exam planning with both anteroposterior and lateral surviews.

Automatic Procedure Selection
Maps the procedure selection from the [redacted] with individual scan protocol(s) simplifying the scanning process. Only the most relevant scan protocol(s) for any requested procedure are shown to the user, so that only the desired scanning procedures are performed. This is especially useful for infrequent users of the CT scanner.

Table Accessories
Patient restraint kit, table extension, standard head holder, table pad, IV Pole, arm rests, cushions, and pads.

Load and Unload Foot Pedals

Load and Unload foot pedals allow the operator to move the patient couch to the load or unload position using a foot pedal thus improving patient handling efficiency by the freeing the operator's hands to prepare, restrain, or release the patient.

[redacted]