SOMATOM Definition AS (AS+ FAST CARE)

All items listed below are included for this system: *(See Detailed Technical Specifications at end of Proposal.)*

Qty	Item Description

Qty   **Item Description**

1   **SOMATOM Definition AS(AS+FAST CARE)**

The SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration) is Siemens' state-of-the-art single source CT that offers the possibility to maximize clinical outcome and to minimize radiation dose. The ultimate goal is to provide medical professionals more time to take better care of their patients. With this, it is set to raise the standard of patient-centric productivity. Using Siemens' z-Sharp technology the SOMATOM Definition AS can provide fast sub-millimeter volume coverage and very high spatial resolution. The high rotation time of 0.30 seconds delivers excellent temporal resolution. With Siemens' new FAST - Fully Assisting Scanner Technologies - the SOMATOM Definition AS can simplify typically time consuming and complex procedures: the scanning process gets more intuitive and the results become more reproducible. Its comprehensive low dose portfolio includes many unique features like CARE kV that sets the ideal voltage for every examination or industry's first Adaptive Dose Shield that prevents clinically irrelevant over-radiation in spiral scanning. Additionally, its large bore of 78 cm opens CT to all patients, meaning that virtually no patient is excluded.

1   **100 kW Power**

The 100 kW power allows the X-ray generator the use of maximum power of 100kW in fine adjustable steps.

1   **SAFIRE #AWP**

The Sinogram Affirmed Iterative Reconstruction (SAFIRE) enhances spatial resolution, reduces image noise and increases sharpness by introducing multiple iteration steps in the reconstruction process. The resulting superior image quality enables to reduce dose by up to 60%*. *In clinical practice, the use of SAFIRE 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. The following test method was used to determine a 54 to 60% dose reduction when using the SAFIRE reconstruction software. Noise, CT numbers, homogenity, low-contrast resolution and high contrast resolution were assessed in a Gammex 438 phantom. Low dose data reconstructed with SAFIRE showed the same image quality compared to full dose data based on this test. Data on file.

1 **FAST CARE Platform**

Siemens' unique FAST CARE platform is set to raise the standard of patient-centric productivity. Utilizing FAST - Fully Assisting Scanner Technologies -, typically time-consuming and complex procedures during the scan process are extremely simplified and automated, not only improving workflow efficiency, but optimizing the overall clinical outcome by creating reproducible results, making diagnosis more reliable and reducing patient burden through streamlined examinations. Siemens' desire for as little radiation exposure as possible lies at the heart of the CARE - Combined Applications to Reduce Exposure - research and development philosophy offering a unique portfolio of dose saving features, many of them being introduced as industry's first.

1 **CARE Child**

Dedicated pediatric CT imaging, including 70 kV scan modes and specific CARE Dose4D curves and protocols

1 **X-CARE**

Partial scanning to reduce direct X-ray exposure for the most dose-sensitive body regions, e.g. the breasts, thyroid gland or eye lens

1 **FAST Advanced Package**

Utilizing Siemens' unique FAST - Fully Assisting Scanner Technologies - time-consuming and complex procedures such as scan or recon preparations are extremely simplified - ideally reduced to a single click. The FAST Advanced Packages offers an attractive bundle of FAST features to comprehensively optimize scan and recon preparations.

1 **FAST IRS**

Reconstruction computer for the preprocessing and reconstruction of the CT raw data. The reconstruction computer contains of a cluster of 4 high-performance GPU boards performing the preprocessing and reconstruction of the CT data. The raw data memory is 3.8 Tbyte. The peak reconstruction performance is up to 50 frames/sec.

1 **Gantry tilt incl. tilted spiral**

Allows for sequential scanning with a tilted gantry between +/- 30°, depending on the vertical position of the table. Using the gantry tilt sensitive organs (like eye lenses) can be moved out of the scan range or it eases access during interventional procedures. The tilted spiral allows to utilize the gantry tilt for spiral scan modes.

1 **ELEVATE R 10-/24-slice>AS+ Config.**

Elevate from 10-/24-slice configuration system to the New SOMATOM Definition AS+.

1 **Standard rear cover**

SOMATOM Definition AS gantry cover

1 **Keyboard English**

Keyboard in the above-mentioned language.

1 **Cooling System Water**

Water heat exchanger for the dissipation of heat loss generated in the gantry to an environmentally friendly cooling water circulation system. This optimizes system availability independently of the ambient conditions. System operating temperature: 18 - 28 degrees C, 18 - 75 % rel. humidity (not condensing).

1 **Hose pipe insulated 30 m**

Hose pipes to connect the "Cooling System" with the gantry.

1 **Cable loom 25 m**

Cable loom used to connect the power distribution system (PDS) with the gantry.

1 **Patient Table 2000 mm**

Patient table to support up to 200cm scan range. Motor-driven table height adjustment from min. 48 cm to max. 92 cm, longitudinal movement of the tabletop 200 cm in increments of 0.5 mm, positioning accuracy +/- 0.25 mm from any direction. Horizontal scan range 200 cm. Table height can be controlled alternatively by means of foot switch (2 each on both sides of the patient table). In the case of emergency stop or power failure, the tabletop can also be moved manually in horizontal direction. Max. table load: 227 kg/500 lbs, Table feed speed: 2-200 mm/s, Distance between gantry front and table base 40 cm. Positioning aids: Positioning mattress, mattress protector, head-arm support (inclusive cushion), and non-tiltable head holders with positioning cushion set, patient restraining system for head fixation, restraining-strap set with body fixation strap that can be directly connected to the patient table top, headrest, table extension with positioning mattress, knee-leg support.

1 **Mattress with Spill Protection**

This mattress is ideal for trauma and acute care settings. The mattress has wide flaps and offers additional protection by preventing liquids spilling into the table by covering the gaps between table top and the table base.

1 **syngo Security Package #AWP**

Software option for syngo based SOMATOM systems, providing enhanced security features including user management and audit trail functionality.

1 **syngo CT.3D Workplace #CTWP**

A dedicated syngo CT processing workplace, designed to optimize data management at the CT scanner.

1 **SAFIRE #CTWP**

The Sinogram Affirmed Iterative Reconstruction (SAFIRE) enhances spatial resolution, reduces image noise and increases sharpness by introducing multiple iteration steps in the reconstruction process. The resulting superior image quality enables to reduce dose by up to 60%*. *In clinical practice, the use of SAFIRE 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. The following test method was used to determine a 54 to 60% dose reduction when using the SAFIRE reconstruction software. Noise, CT numbers, homogenity, low-contrast resolution and high contrast resolution were assessed in a Gammex 438 phantom. Low dose data reconstructed with SAFIRE showed the same image quality compared to full dose data based on this test. Data on file.

1 **CARE Profile #CTWP**

CARE Profile visualizes the dose distribution along the topogram prior to the scan.

1 **FAST Spine #CTWP**

Accurate and anatomically aligned preparation of spine recons with just a single click.

1 **FAST Planning #CTWP**

Immediate, organ-based setting of scan and recon ranges aiming for a safer, faster and more standardized workflow at the scanner.

1 **syngo InSpace 4D AVA #CTWP**

syngo InSpace 4D Advanced Vessel Analysis is an optional plug-in for syngo InSpace 4D. The application facilitates automated vessel segmentation and stenosis quantification

1 **syngo Circulation Basic #CTWP**

Basic syngo(r) Circulation viewer necessary to use: - syngo Circulation - syngo Circulation Plaque Analysis - syngo Circulation PE Detection

1 **syngo Circulation PE Basic #CTWP**

syngo(r) Circulation PE Detection Basic allows the optimal display of pulmonary CTA data. The detection of pulmonary emboli is facilitated and findings can be reported into the syngo Circulation reporting function allowing a combined report for acute chest pain.

1	**syngo Pulmo CT #CTWP**

Software program for the quantitative determination of CT values in the lung for diagnoses and follow-up examinations.

1	**syngo Image Fusion CT #CTWP**

Image Fusion package for spatial alignment and visualisation of image data of one patient where image data has been generated at different points in time or by different modalities. Support of optimal diagnosis (fusion of morphological and functional information) and therapy planning.

1	**syngo Neuro DSA CT #CTWP**

syngo(r) Neuro DSA subtracts bone structures from CT-Angiography (CTA) datasets for improved visualization of the cerebral vasculature. It uses al nonenhanced CT (NECT) scan with the aim to automatically and quickly remove bone from cerebral CTA data. This improves visualization of vascular structures in the area of the skull base and helps to delineate aneurysms and other vascular diseases.

1	**syngo Security Package #D# CTWP**

Software option for syngo based SOMATOM systems, providing enhanced security features including user management and audit trail functionality.

1	**syngo CT Oncology #CTWP**

syngo(r) CT Oncology for CTWP is a comprehensive software solution designed to fast-track routine diagnostic oncology, staging, and follow-up.

1	**syngo LungCARE CT #CTWP**

LungCARE is a dedicated syngo software for the evaluation of pulmonary nodules. Based on a high-resolution, low-dose CT examination of the lungs and thin-slice reconstruction, the entire lung volume can be evaluated in freely selectable slice thicknesses. Various tools are available for measuring the exact size of detected nodules. Support for follow-up exams and configurable reporting.

1	**syngo Lung CAD CT #CTWP**

syngo Lung CAD CT is an enhancement to the syngo LungCARE software package that supports the physician with computer assisted detection of pulmonary nodules.

1	**syngo Colonography CT #CTWP**

syngo(r) Colonography CT is a non-invasive diagnostic tool for CT and MR data which can be used to locate and evaluate lesions in the colon.

1	**syngo Colonography CT PEV #CTWP**

syngo Colonography Polyp Enhanced Viewing (PEV) is a fully automated computer assisted reading tool designed to be used as a second reader for visualization of lesions missed on the primary read. It is an option for syngo Colonography.

1	**Keyboard English**

Keyboard in the above-mentioned language.

1	**Cable 25m #CTWP**

25 meter connection between CT workplace and CT system. Contains both, power and network connection between workplace and the CT system, makes additional power supply unnecessary.

1	**CT Project Management**

A Siemens Project Manager (PM) will be the single point of contact for the implementation of your Siemen's equipment. The assigned PM will work with the customer's facilities management, architect or building contractor to assist you in ensuring that your site is ready for installation. Your PM will provide initial and final drawings and will coordinate the scheduling of the equipment, installation, and rigging, as well as the initiation of on-site clinical education.

1
CT Standard Rigging and Installation

This quotation includes standard rigging and installation of your CT new system. Standard rigging into a room with reasonable access, as determined by Siemens Project Management, during standard working hours (Mon. - Fri./ 8 a.m. to 5 p.m.) It remains the responsibility of the Customer to prepare the room in accordance with the SIEMENS planning documents. Any special rigging requirements (Crane, stairs, etc.) and/or special site requirements (e.g. removal of existing systems, etc.) is an incremental cost and the responsibility of the Customer. All other "out of scope" charges (not covered by the standard rigging and installation) will be identified during the site assessment and remain the responsibility of the Customer.

1
AS128 Elevate R 10 24 Bonus

1
Initial onsite training 32 hrs

Up to (32) hours of on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Training will cover agenda items on the ASRT approved checklist. Uptime Clinical Education phone support is provided during the warranty period for specified posted hours. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.

1
Additional onsite training 32 hours

Up to (32) hours of on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Training will cover agenda items on the ASRT approved checklist if applicable. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.

1
CT syngo Security Virtual Instructor Led

Tuition for up to (4) professionals to participate in a Siemens instructor led virtual class. The objectives of this virtual class are to introduce the user interface and configuration options of the syngo Security Package. The training is best suited for the IT 6 and/or PACS administrator. The virtual setting allows the participant to benefit from a 4 hour online virtual training session without the need to travel to a Siemens training center. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.

1
Additional onsite training 32 hours

Up to (32) hours of on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Training will cover agenda items on the ASRT approved checklist if applicable. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.

3
Govt. Training Class (T&L not included)

Tuition for (1) government attendee to attend a Classroom Course of choice at one of the Siemens training centers. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.

1
Additional On Site Training Up 24 hours

Up to (24) hours of onsite training, scheduled consecutively (Monday - Friday) during standard business hours to provide to imaging professionals a comprehensive understanding of dose awareness, utilization, and protocol optimization on their Siemens CT scanner. Main objectives are to review dose reduction strategies as pertinent to the customer's CT scanner, to demonstrate adaption of CT parameters to the patient following the ALARA principle-keeping dose at the lowest possible level while deriving the appropriate diagnosis for adults and children. This educational offering must be completed (12) months from purchase. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.

Qty	Item Description
1	**Initial onsite training 32 hrs GovOffset**
1	**Offset One Additional Onsite Training 32 hrs**
1	**AS+ configuration z-Sharp Technology**

The unique STRATON X-ray source utilizes an electron beam that is accurately and rapidly deflected, creating two precise focal spots alternating 4,608 times per second. This doubles the X-ray projections reaching each detector element. The two overlapping projections result in an oversampling in z-direction. The resulting measurements interleave half a detector slice width, doubling the scan information without a corresponding increase in dose. Siemens' proprietary UFC (Ultra Fast Ceramic) detectors and the corresponding 128-slice detector electronics enable a virtually simultaneous readout of two projections for each detector element - resulting in a full 128-slice acquisition. This sampling scheme is identical to that of a 128 x 0.3 mm allowing for reconstruction of 384 slices using 0.1 mm reconstruction interval increment. z-Sharp Technology, utilizing the STRATON X-ray sources and the UFC detectors, provides scan speed independent visualization of 0.33 mm isotropic voxels and a corresponding elimination of spiral artifacts in the daily clinical routine at any position within the scan field.

Qty	Item Description
1	**Stellant Dual Flow CT Inj.(Ceiling-long)**
1	**Medrad P3T Abdomen**
1	**Medrad P3T CTPA**
1	**Medrad ISI900 interface,w/install**
1	**Surge Protective Device (SPD)**
1	**EATON Powerware 9390-160kVA UPS**

Powerware 9390 160kVA UPS. 160kVA/144kW. 480 volts input / 480 volts output. Double Conversion Topology, Unit efficiency up to 94%, Unit output rating @ 0.9 Power Factor, Input current distortion < 4.5%, Patented ABM Technology, Patented HotSync parallel firmware control, Scalable Architecture, Parallel Redundancy and Capacity capable. Included Services: Start-up (5x8): PLUS One year on-site parts & labor coverage (7x24), PLUS: One year remote monitoring. If requested, for remote monitoring, a ConnectUPS Web/SNMP Card will be installed during start-up at no charge.

Qty	Item Description
1	**Low Contrast CT Phantom & Holder**
1	**Lodging for Complimentary Biomed training for 1 Engineer for**
1	**Airfare for Complimentary Biomed training for 1 Engineer**
1	**Airfare for Govt. Training Class for 3 techs**
1	**Lodging for Govt. Training Class for 3 techs for 5 nights**
1	**One complimentary biomedical tuition is included with the purchase of this system. This training must be completed before the end of the warranty period.**
1	**TWO SETS OF SERVICE AND OPERATORS MANUALS**
1	**Additional Rigging/Out of Scope Outbound**

Qty	Item Description
1	
	Lodging for Additional Biomed training for 1 Engineer
1	
	Airfare for Additional Biomed training for 1 Engineer
1	

Detailed Technical Specifications

SOMATOM Definition AS (AS+ FAST CARE)

/ Product	Description
)	The SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration) is founded on Siemens' proprietary UFC detector system and the revolutionary STRATON X-ray source. In combination with Siemens' z-Sharp Technology, FAST (Fully Assisting Scanner Technologies) and CARE (Combined Applications to Reduce Exposure) solutions as well as Siemens exclusive CT Clinical Engines options, the SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration) offers unprecedented image quality and detail at significantly reduced patient exposure, as well as substantially increased diagnostic speed and confidence thus raising the standard of patient-centric productivity. The STRATON source provides direct oil cooling of the anode, eliminating the need for heat storage capacity (0 MHU). The resulting small and compact design enables an unprecedented cooling rate of 7.3 MHU/min as well as reliable performance even when operating at a very high rotation time of 0.30 sec. In combination with the HeartView CT option temporal resolution of 150 ms of the SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration)allows to reliably scan even high heart rates, e.g. in acute chest pain evaluation, in coronary visualization, and in functional analysis of the heart. Together with the unique z-Sharp Technology that routinely enables the industry's highest isotropic and scan field position independent spatial resolution of up to 0.24 mm voxel size, it visualizes the smallest anatomical structures with exceptional quality, whether the complex inner-ear bones, the finest details of the coronary tree or intracranial, pulmonary, mesenteric, renal and peripheral vessels. It also helps to perform accurate stenosis measurements or stent planning with outstanding precision. Neuro head image quality is significantly improved with Neuro BestContrast, by optimizing grey/white matter differentiation without increase in radiation dose. The UFC (Ultra Fast Ceramics) detector of the SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration) acquires 128 slices per rotation. In combination with its 78 cm large bore, 200 cm scan range (optional), and the 100 kW (depends on clinic network) generator power, it adapts to virtually any patient independent of size or condition, helping to save precious time from scan to diagnosis to treatment. When doing interventional CT for example, the easy patient access enables fast positioning of interventional instruments and thus provides a larger and more comfortable sterile environment. Or for emergency room examinations, the large bore of the the SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration) virtually eliminates the necessity to reposition and adjust life support equipment. Additionally, positioning and scanning of bariatric patients is significantly simplified while improving patients comfort. With all this, the SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration) offers the unique combination of industry's highest image detail and industry's highest sub-millimeter volume coverage of 192 mm/sec enabling whole body examinations within a few seconds - adapting to challenging patients such as poly-trauma and incautious or uncooperative patients, leading to an improvement in image quality and patient comfort. Siemens has developed many significant products and protocols that follow the "As Low as Reasonably Achievable" (ALARA) principle to reduce radiation dose to the lowest possible level. This desire for as little radiation exposure as possible lies at the heart of our CARE – Combined Applications to Reduce Exposure - research and development philosophy. The SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration) consequently offers a unique portfolio of dose saving features; many of them being industry's first like the Adaptive Dose Shield, CARE kV or 70kV scan modes. Using Siemens' CARE solutions radiation dose can be significantly reduced compared to conventional CT systems. With the introduction of Siemens' unique FAST CARE platform, the SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration) is set to raise the standard of patient-centric productivity. Utilizing FAST – Fully Assisting Scanner Technologies -, typically time-consuming and complex procedures during the scan process are extremely simplified and automated, not only improving workflow efficiency, but optimizing the overall clinical outcome by creating reproducible results, making diagnosis more reliable and reducing patient burden through streamlined examinations. With its unique Adaptive 4D Spiral Plus scan mode (optional) the SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration) overcomes the coverage limitations in dynamic CT imaging when using a static detector and allows for up to 41,5 cm coverage in dynamic CT imaging.

/ Product	Description
(Continued)	In addition the SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration) optionally offers a built in 3D minimal invasive suite, enabling 3D guided interventions with full control of the radiologist due to the all new wireless in-room control.

Also the SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration) offers the widest range of clinical applications options, which allow performing everything from fast and confident diagnoses to comprehensive reporting in only a matter of minutes, reviewing results before the patient is off the table.

1. Gantry:
Aperture: 78 cm; power supplied via low-voltage slip ring. Scanning system: Detector system based on Siemens' proprietary UFC (ultra fast ceramics) with 47,104 elements, 128 detector electronic channels (DAS) utilized for up to 128 slices/rotation acquisition, and 1,472 measuring channels per slice (The measuring system can contain replacement components).

In cases of very low signal at the detector (e.g. when scanning bariatric patients), the Adaptive Signal Boost improves image quality by amplifying individual pixels based on an analyzation of the surrounding image data. It reduces streaks and noise and maintains the correct HU values for large patients.

Spiral acquisition modes: 128 x 0.6 mm, 64 x 0,6 mm, 20 x 0.6 mm, 16 x 0,6 mm, 8 x 0,6 mm, 32 x 1.2 mm, 16 x 0,3mm (optional with z-UHR).

Sequence acquisition modes : 128 x 0.6 mm, 60 x 0.6 mm, 12 x 0.6 mm, 8 x 0.6 mm, 2 x 1 mm, 6 x 1.2 mm, 32 x 1.2 mm, 12 x1.2mm, 1 x 5 mm, 1 x 10 mm. Three laser light markers: Horizontal, sagittal, and vertical laser light that shows the isocenter position of the scan plane.

Three laser light markers: Horizontal, sagittal, and vertical laser light that shows the isocenter position of the scan plane.

2. Tube Assembly:
Source: STRATON high performance X-ray source. Tube current range: Single source 20- up to 800 mA; Tube anode heat storage capacity 0 MHU. Cooling rate 7.3 MHU/min (5,400 kJ/min). Focal spot size according to IEC 60336: 0.7 x 0.7 mm/7°, 0.9 x 1.1 mm/7°. Computer c ontrolled monitoring of anode temperature, Multifan principle with flying focal spot.

3. High Power X-ray Generator:
Microprocessor-controlled, low-noise high-frequency generator with integrated, automatic self-testing system for continuous monitoring of operation. Settings: High-voltage range 70, 80, 100, 120 and 140 kV; power max. 100 kW (depends on clinic network), adjustable in fine steps.

4. z-Sharp Technology:
The unique STRATON X-ray source utilizes an electron beam that is accurately and rapidly deflected, creating two precise focal spots alternating 4,608 times per second. This doubles the X-ray projections reaching each detector element. The two overlapping projections result in an oversampling in z-direction. The resulting measurements interleave half a detector slice width, doubling the scan information without a corresponding increase in dose. Siemens' proprietary UFC (Ultra Fast Ceramic) detectors and the corresponding 128-slice detector electronics enable a virtually simultaneous readout of two projections for each detector element – resulting in a full 128-slice acquisition. z-Sharp Technology, utilizing the STRATON X-ray sources and the UFC detectors, provides scan speed independent visualization of 0.33 mm isotropic voxels and a corresponding elimination of spiral artifacts in the daily clinical routine at any position within the scan field.

5. Control and Evaluation Unit:
Control box: CT control with patient intercom, user-recordable patient instruction system, 30 automatic patient instruction (API) text pairs are available in nine languages.

syngo Acquisition Workplace: The *syngo* Acquisition Workplace provides an intelligent and reliable workflow for data acquisition, image reconstruction and routine post-processing at the CT scanner. Built on the unique *syngo* platform, the *syngo* Acquisition Workplace is intuitive and user friendly. Computer system: High-performance computer with 1x Xeon QC6700, 2.66GHz, NVIDIA Quadro FX1700 DVI graphics card for fast 3D post-processing. High resolution, flicker free, 19-inch (48 cm) color flat panel display for medical diagnostic applications combining the demanding requirements of medical imaging with the advantages of liquid crystal displays. This display provides a resolution of 1280 x 1024 and has a wide viewing angle, features high contrast even under high ambient light conditions. Display light output stability is ensured by controlled backlight throughout the whole |

/ Product	Description

lifetime. Keyboard and mouse, 8 Gbyte RAM, 146 Gbyte image storage for 260,000 uncompressed images, CD-R 700 MB for 1,100 images. DVD DICOM with 4.7 GB media for 8,400 images. External USB 2.0 devices for data storage are supported (recommended: Iomega 160 Gbyte External Hard Drive Hi-Speed USB 2.0; Maxtor One Touch 160 Gbyte External Hard Drive).

6. CT Image Computer System:
Reconstruction computer for the preprocessing and reconstruction of the CT raw data. The reconstruction computer contains of a cluster of 2,2 GHz dual kernel high-performance processors performing the preprocessing and reconstruction of the CT data with up to 40 images per second. The raw data memory is 750 Gbyte.

The Extended Raw Data Storage (optional) allows for extended storage capacity of raw data to 2.7 TB.

7. Cooling System:
SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration) can be equipped with either air or water cooling adapting to your room requirements. This optimizes system availability independently of the ambient conditions and reduces expensive reconstruction costs. System operating temperature: 18-28°C, 18 - 75 % rel. humidity (not condensing).

8. *syngo* User Software:
syngo features an intuitive and thus easy-to-learn user interface developed from prototypes in close cooperation with users. *syngo* visualizes the examination in individual process steps on so-called task cards, such as patient registration or examination card. A large number of functions and input parameters as well as the language used can be selected according to individual requirements. Frequently repeated processes can be automated and saved.

Patient registration:
The system can accept patient data in different ways. These include entering the data via keyboard or transfer of a worklist via network. DICOM Worklist: Software module for accepting lists of patient data and exam requirements from a Radiology Information Systems (RIS) via DICOM Get Worklist functionality. The program enables very efficient working and ensures consistent patient data. In emergency cases, fast registration is possible. Here the system automatically assigns an emergency number which can later be replaced by the actual patient number. The input profile can be designed individually.

Examination card:
The SOMATOM Definition AS (AS+ FAST CARE, 128-slice configuration) is delivered with a large number of predefined examination protocols (e.g. for pediatric applications), making examination planning a very fast and efficient procedure. Example: A three-phase examination of the liver available as independent protocol only needs to be adapted to the patient's individual situation. Each examination is represented pictorially as a so-called "chronicle", which views the individual phases of the examination separately. This has the advantage that the individual phases of the examination can be accessed quickly and selectively and changes to the protocol can be made easily in graphical mode via drag-and-drop using the mouse. With a so-called routine window, it is possible to adapt individual examination parameters, representing a submenu of the essential parameters and giving information at a glance about the parameterization of the examination.

Viewing card:
On the viewing card it is possible to move interactively with the mouse through the image volume of the ongoing examination. The images of different examinations can be displayed simultaneously for comparison. A large number of functions are available for evaluation, documentation and archiving.

Filming card:
A virtual film sheet shows a 1:1 display of the film sheets to be printed out, thus enabling an effective preview of filming jobs and rewindowing of the images, as well as providing a large number of evaluation functions. Layout changes are possible interactively with up to 64 images. The printout parameters for the autofilming process running in parallel to acquisition or reconstruction are also defined with the filming card. Freely selectable positioning of images onto film sheet, configurable image text.

3D card:
Secondary reconstruction calculation: Real-time MPR for real-time reformatting of secondary reconstructions. Slice orientation: coronal, sagittal, oblique and double-oblique. Secondary reconstructions can be determined from the topogram, other MPR views or from a 3D surface reconstruction. Reconstruction with selectable slice thickness.

CT Angio: Software for the reconstruction of angular projections from the images of a spiral data record for the display and diagnosis e.g. of aneurysms, plaques, stenoses, vascular anomalies or vascular origins. MIP: Maximum Intensity Projection, MinIP: Minimum Intensity Projection and Thin MIP available. Interfering or irrelevant parts of the image can be eliminated with the integrated volume editor. The angular projections are reconstructed

Part No. / Product	Description
(Continued)	around a definable axis, whereby the maximum CT values in this direction are selected for each angular projection. The resulting images can be viewed with the CINE function as a series of images with a 3D image effect.

3D Display: Software for the three-dimensional display of surfaces of a body region from a series of continuous slices, for display and analysis of complex anatomies, e.g. the visceral cranium, pelvis, hips, for the purpose of planning surgical interventions. The 3D objects can be tilted and rotated interactively on the monitor and can also be displayed in relation to multiplanar reconstruction (MPR).

Volume card: Volume scans of tissues and organs, based on a "region-growing" algorithm and interactive ROI definition.

DynEva card: Software for dynamic evaluation of the contrast enhancement in organs and types of tissues, enabling the reconstruction of
- Time-density curves (up to 5 ROIs)
- Peak-enhancement images
- Time-to-peak images.

Video Capture and Editing Tool: Software contains integrated solution for imaging and visualization of 4D information, allowing the generation and editing of video files for improved diagnoses, recording and teaching. A wide range of multimedia formats is supported, e.g. AVI, Flash (SWF), GIF, QuickTime (MOV), streaming video.

Additional task cards available as an option.

9. Examination and Evaluation Functions:
Topogram: Scanning perspectives: a.p., p.a., lat.; length of scan field: 128 – 1574mm (optional up to 1974 mm), width of scan field: 512 mm, 1.5 - 16s (optional 20.22s). The topogram can be switched off manually when the desired examination length is reached.

Tomogram: Scan field size: 50 cm. Standard scan times: 0.30, 0.33, 0.5 and 1 seconds. Slice thickness in sequence: 0.6, 0.75,1, 1.2,1.5, 2.0, 2.4, 3,3.6, 4.0,4.8, 5, 6, 7, 7.2, 8, 9, 10, 12, 14.4,15, 20 mm
Slice thickness in spiral: 0.4**, 0.5**, 0.6, 0.75, 1.0, 1.5, 2, 3, 4, 5, 6, 7, 8, 10 mm Real-time image display. Immediate image reconstruction and display without time delay simultaneously to data acquisition in 512 x 512 matrix size.

Spiral: Scanning technique for continuous volume scans with continuous table feed in multirotation mode. Max. scan time 80 seconds with full low-contrast resolution. Volume length 1540 mm (optional1940mm) with full low-contrast resolution (max. 200 cm scan range possible using multiple automatic ranges). Selection of the pitch factor between 0.3 and 1.5 depending on scan mode. Selection of up to 33 separately parameterizable examination ranges in a patient protocol. In addition individual anatomic sections can be successively combined and then scanned automatically. Storage of up to 10,000 examination protocols. Rotation times/cycle: 0.30 sec, 0.33 sec, 0.5 sec and 1 sec.

Adaptive 4D Spiral (optional): Continuous multirotational data acquisition with continuous smooth bi-directional table movement. Quantitative evaluation and graphical display of time-density curves over entire organs.

The intelligent algorithm Neuro BestContrast improves native head image quality especially grey/white matter differentiation. Images are decomposed into high and medium/low spatial frequencies. While relevant tissue information is contained in medium and low frequencies noise is dominated by high frequencies. Separate processing of medium and low frequency information improves the tissue contrast without amplifying image noise resulting in a better signal to noise ratio.

Dynamic: Program for functional dynamic examinations. Serial scanning technique in one slice position with variable scans cycle times.

Multiscan spiral examination without table feed: Continuous multirotational data acquisition in one slice position. Quantitative evaluation and graphical display of time-density curves.

WorkStream4D with Asynchronous Recon: 4D workflow with direct generation of axial, sagittal, coronal, or double-oblique images from standard scanning protocols. Elimination of manual reconstruction steps. Asynchronous Recon allows for multiple image reconstructions and reformats, parallel to scanning. With this feature, up to eight reconstructions job requests can be loaded into a scan protocol. Immediately upon completion of the scan acquisition, these reconstruction jobs are automatically executed in the background without delaying the start of next patient examination. |

/ Product	Description
(Continued)	Image reconstruction and storage: Image reconstruction in full resolution (512 x 512 matrix) takes place during the examination with up to 40 images per second, with full cone beam reconstruction, z-Sharp Technology and full image quality. Reconstruction fields of 5 cm to 50 cm through raw data zoom with the possibility of freely selecting the image center either prospectively before each scan or retrospectively. Reconstructions of different slice thicknesses from a single raw data record, e.g. lung soft tissue and lung high-contrast with CombiScan, with simultaneous suppression of partial volume artifacts. Up to 8 reconstructions per scan range can be predefined with the examination protocol. Patient-related storage of the image and raw data.

Image display: 1024 x 1024 display matrix; screen splitting configurable up to 64 image segments; CT value scale from -1024 to +3071 HU. For very dense objects, the CT value scale can be extended from -10240 to +30710 HU (extended CT scale) e.g. for suppressing metal artifacts.

Image evaluation: Complete software-controlled image evaluation program for all diagnostic requirements.

CINE Display: Dynamic display technique for the visualization of time or volume series. A series of up to 1024 images can be displayed at a frame rate of at least 30 f/s. Automatic or interactive mouse-operated control.

Multitasking functions: Simultaneous processing during operation of the scanner.

Real-time Display: Image reconstruction in pace with the examination in full image quality (512 x 512 matrix) with up to 40 images/second (with full cone beam reconstruction and z-Sharp Technology).

Metro Display: Simultaneous display, processing and evaluation of images from other patients while the current patient is being scanned.

Metro Documentation: Simultaneous documentation of images from any previously examined patient while the current patient is being scanned.

Metro Copy: Automatic transfer of image data to the *syngo* CT Workplace (optional) or a DICOM network node.

10. Network Module:
For the connection to a local Ethernet (10, 100 Mbit or 1-Gigabit) in order to communicate with networked printers, diagnostic and therapy workstations, RIS or HIS systems and teleradiology routers.

Scope of functions:
- Configurable network stations.
- Unlimited selection of stations.
- DICOM Standard (Digital Imaging and Communications in Medicine) for the transfer of information between DICOM-compatible units from different manufacturers. The scope of functions is described in detail in the DICOM Conformance Statement, and the standard version comprises the functions Send/Receive, Query/Retrieve and BasicPrint, Worklist, Storage Commitment, MPPS (Modality Performed Procedure Step).

11. Integrated CARE Solutions:
UFC Detector: Up to 30% dose reduction compared to conventional CT detectors. High efficiency for low mAs requirements enable
best possible image quality with low patient dose.

Adaptive Dose Shield: world's first dynamic tube collimation that protects the patient from clinically irrelevant radiation in every spiral scan.

CARE Filter: Specially designed X-ray exposure filter installed
at the tube collimator. Up to 25% dose reduction
with increased image quality.

Pediatric Protocols: Special examination protocols with 80 kV and a large range of adjustable mAs values for optimum adaptation of the radiation exposure to the age and weight of the child to be examined.

CARE Topo: Real-time topogram, Manual interruption possible once desired anatomy has been imaged.

CARE Bolus: Operating mode for CM-enhancement triggered data acquisition. The objective is optimum utilization of the contrast medium bolus in its "plateau" phase in the target organ. This option has been especially adapted to the increased speed and timing requirements resulting from the multirow capability and faster rotation. The CM enhancement is observed via monitoring scans in a user-defined ROI with a trigger threshold. As soon as the

/ Product	Description
(Continued)	enhancement reaches its predefined threshold, the spiral scan is triggered as quickly as possible. License for software use on one modality. **12. Siemens Remote Service:** Siemens Remote Service (SRS) offers a wide range of medical equipment-related remote services resulting in increased system availability and efficiency. SRS employs sophisticated authentication and authorization procedures, state-of-the-art encryption technologies and logging routines together with strictly enforced organizational measures that provide optimal patient data security and access protection. The following SRS services are included for all service agreement customers and during warranty period: Remote Diagnosis & Repair: In case of an unforeseen system malfunction, Siemens competent experts may directly connect with the CT system in order to identify the problem quickly. Moreover the remote repair function enables Siemens to often correct software errors immediately. Should an engineer on site be required, Remote Diagnosis & Repair allows Siemens to identify defective parts efficiently and accelerate their delivery, thereby keeping repair times to a minimum. Event Monitoring: Event Monitoring screens the performance of the system. If a parameter deviates from a predefined value, a status message is automatically sent to the Siemens UPTIME Service Center. Service Engineers may evaluate the status message at periodic intervals and may initiate appropriate action within the scope of the service agreement. SOMATOM LifeNet: An information and service portal directly at the CT Scanner consoles, featuring up to date information on CT products, application guides, accessories and training schedules as well as download of the latest scan protocols and 90 day free trial licenses on available software applications. Notes on software use: Use of the entire integrated software, including optional software programs, is restricted exclusively to the application with this system. Note: This product is in compliance with IEC60601-1-2 and fulfills CISPR 11 Class A. Note: In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
	Dose reduction with CT has been limited by the currently used filtered back projection (FBP) reconstruction algorithm. When using this conventional reconstruction of acquired raw data into image data, a trade-off between spatial resolution and image noise has to be considered. Higher spatial resolution increases the ability to see the smallest detail; however, it is directly correlated with increased image noise in standard filtered back projection reconstructions as they are used in CT scanners today. Iterative reconstruction approaches allow decoupling of spatial resolution and image noise. With the Sinogram Affirmed Iterative Reconstruction (SAFIRE), correction loops are introduced into the image generation process. These iteration loops utilize raw-data information to significantly improve image quality. Additionally, image noise is removed in the iterative corrections the without degrading image sharpness. The noise texture of the images is comparable to standard well-established convolution kernels. The new technique results in an image quality with reduced noise and increased image sharpness that can be translated to dose savings of up to 60 %* for a wide range of clinical applications. *In clinical practice, the use of SAFIRE 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. The following test method was used to determine a 54 to 60% dose reduction when using the SAFIRE reconstruction software. Noise, CT numbers, homogenity, low-contrast resolution and high contrast resolution were assessed in a Gammex 438 phantom. Low dose data reconstructed with SAFIRE showed the same image quality compared to full dose data based on this test. Data on file.
	Siemens has always been at the forefront to deliver highest image quality and reduce radiation dose at the same time to the lowest possible level. But today, an additional barrier has to be mastered to maximze clinical outcome: overcome the growing restrictions and limitation of resources. With FAST CARE, Siemens opens a new chapter in CT, explicitly focusing on the optimization of patient-centric productivity in modern healthcare delivery. With FAST CARE, time-consuming and complex procedures such as scan or recon preparations are extremely simplified – ideally reduced to a single click. The scanning process gets more intuitive and the results become more reproducible. The FAST CARE platform consists the following features:

/ Product	Description
(Continued)	FAST Scan Assistant: An intuitive user interface for solving conflicts by changing the scan time, resp. the pitch and/or the maximum tube current manually. CARE kV: First automated, organ-sensitive voltage setting to improve image quality and contrast-to-noise-ratio while optimizing dose and potentially reducing it by up to 60%. CARE Child: Dedicated pediatric CT imaging, including 70 kV scan modes and specific CARE Dose4D curves and protocols CARE Profile: Visualization of the dose distribution along the topogram prior to the scan CARE Dashboard: Visualization of activated dose reduction features and technologies for each scan range of an examination to analyze and manage the dose to be applied in the scan CARE Dose Configurator: Enhancement of Siemens' renowned real-time dose modulation CARE Dose4D, introducing new reference curves for each body region and for each body habitus allowing to adjust the configuration even more precisely to the patient's anatomy. Dose Notification: As requested by the new release of the standard IEC 60601 3rd edition, the SOMATOM Definition AS (AS+ Excel Edition, 128-slice configuration) provides the ability to set dose reference values (CTDIvol, DLP) for each scan range. If these reference values are exceeded the Dose Notification window informs the user. Dose Alert: As requested by the new release of the standard IEC 60601 3rd edition, the SOMATOM Definition AS (AS+ Excel Edition, 128-slice configuration) automatically adds up CTDIvol and DLP depending on z-position (scan axis). The Dose Alert window appears, if either of these cumulative values exceeds a user-defined threshold.
	With Siemens' unique STRATON tubes, the tube voltage can now be reduced to 70kV which helps to reduce radiation exposure to patients. With prior tube technology, the minimum tube voltage setting was 80 kV. The new tube voltage setting of 70 kV helps to further reduce the radiation dose to small pediatric or neonate patients. CARE Child consists of: - dedicated 70 kV scan modes - new CARE Dose4D curves for children - respective Children Protocol utilizing these features
	The FAST Advanced Package consists the following features: FAST Planning: assists the scan and reconstruction planning, based on a topogram, to provide an easier, faster and standardized workflow in CT scanning. FAST Planning features the selection of the anatomical region of interest from a list prospectively defined scan and reconstruction ranges, automatic detection of the scan region(s) of interest and proposal of corresponding scan range(s) in the topogram (in a narrow or wide lateral FOV), optimized FOV and automatic iso-center adaptation for Head scans. FAST Spine: provides various modes that automatically create anatomically orientated spine reconstructions based on a 3D volume. It provides an easier, faster and standardized workflow in CT scanning. FAST Spine features automatic segmentation of the spinal canal, automatic labeling of the vertebrae, anatomically oriented slices – (orthogonal to the spinal canal), coronal and sagittal reconstructions which refer to the curvature of the spinal column and more. All modes offer the possibility to adapt the results manually. FAST Adjust: assists the user to handle system settings in a fast and easy way by automatically solving of conflicts within user defined limits by one single click on the FAST Adjust button. The limits for scan time and tube current per scan are defined via the Scan Protocol Assistant. FAST Adjust offers an undo functionality to return to previously set values. FAST Cardio Wizard: an intuitive guidance software, fully integrated in the cardio workflow. It allows training the cardiac workflow and provides guidance and support during the examination. It is based on the latest cardio application training material and provides helpful tips to avoid common problems and pit-falls. It features step-by-step on-screen for various cardiac examinations. Text and images are delivered in a default setting based on Siemens' latest application training, but are fully customizable by the user.

Part No. / Product	Description
(Continued)	The FAST Advance Package requires the FAST CARE Platform. FAST Spine requires Workstream 4D. FAST Cardio Wizard requires HeartView CT.
	Software license enabling system to support Enhanced User and System management, including: - User authentication to prohibit unauthorized access - Privileges to define user/role based functionality - Permissions to control data access - Audit trails to log system and data access.

	syngo CT Workplace
	The *syngo* CT Workplace is a dedicated CT processing workplace that provides instant access to image and scan data via a shared database with the *syngo* Acquisition Workplace.
	
	The *syngo* CT workplace comes with the following standard features:
	- *syngo* software platform
	- *syngo* 3D Basic
	    - Basic 3D Viewer platform for display of 3D series with multiplanar reconstruction (MPR), surface shaded display (SSD), and maximum intensity projection (MIP).
	    - Offers dual monitor support (a second monitor is optional and must be purchased separately)
	- *syngo* VRT
	    - Direct Volume Rendering Technique (VRT) for viewing 3D-volumes
	    - Projection of volume information onto an arbitrarily oriented planes. For each projection ray the density, opacity, and refraction of the penetrated volume is evaluated and the resulting intensity/color is recorded.
	    - Independent control of color, opacity and shading of up to 4 tissue classes.
	    - Predefined VRT settings can be selected via an image gallery.
	    - Facilitates automated bone removal
	    - 3D VRT
	
	- Workstream 4D with 3D Recon -
	    - Acceleration of workflows by direct planning and reconstruction of diagnostic MPR / MIP images
	    - Drastic reduction of the amount of data, since only data relevant for diagnosis are stored
	    - Double-oblique planes for easy planning in the case of complex anatomic structures
	    - Programming of standard projections
	    - Maximum flexibility, since the CT system remains fully functional during image reconstruction
	    - Up to 24 multiphase reconstructions can be initiated in parallel.
	
	HW Configuration:
	- High-performance computer: Standard Xeon E5540 Quad Core HT processor or equivalent
	- Graphics accelerator: Enhanced Graphics Accelerator
	- Standard monitor: Flat screen 19" (48 cm) monitor with 1,280 x 1,024 resolution, 1,024 x 1,024 image display matrix and 0.29 mm pixel size. Optional second monitor with dual display functionality (optional plug-in for *syngo* 3D) flat screen monitor 19" (48 cm) enables splitting of the *syngo* task cards onto two monitors.
	- Standard RAM storage: 12 GB
	- Image storage Shared database with *syngo* Acquisition Workplace
	- Additional storage: CD/DVD Recorder
	- DICOM viewer: Included on each CD; automatically started on the viewer's PC.

	Dose reduction with CT has been limited by the currently used filtered back projection (FBP) reconstruction algorithm. When using this conventional reconstruction of acquired raw data into image data, a trade-off between spatial resolution and image noise has to be considered. Higher spatial resolution increases the ability to see the

/ Product	Description
(Continued)	smallest detail; however, it is directly correlated with increased image noise in standard filtered back projection reconstructions as they are used in CT scanners today. Iterative reconstruction approaches allow decoupling of spatial resolution and image noise. With the Sinogram Affirmed Iterative Reconstruction (SAFIRE), correction loops are introduced into the image generation process. These iteration loops utilize raw-data information to significantly improve image quality. Additionally, image noise is removed in the iterative corrections without degrading image sharpness. The noise texture of the images is comparable to standard well-established convolution kernels. The new technique results in an image quality with reduced noise and increased image sharpness that can be translated to dose savings of up to 60 %* for a wide range of clinical applications. *In clinical practice, the use of SAFIRE 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. The following test method was used to determine a 54 to 60% dose reduction when using the SAFIRE reconstruction software. Noise, CT numbers, homogenity, low-contast resolution and high contrast resolution were assessed in a Gammex 438 phantom. Low dose data reconstructed with SAFIRE showed the same image quality compared to full dose data based on this test. Data on file.
	Among others the FAST CARE platform consists of CARE Profile. CARE Profile automatically displays dose distribution for the planned examination, visualizing the impact of dose modulation used during the examination.
	FAST Spine provides various modes that automatically create anatomically orientated spine reconstructions based on a 3D volume. It provides an easier, faster and standardized workflow in CT scanning. FAST Spine features automatic segmentation of the spinal canal, automatic labeling of the vertebrae, anatomically oriented slices – (orthogonal to the spinal canal), coronal and sagittal reconstructions which refer to the curvature of the spinal column and more. All modes offer the possibility to adapt the results manually. FAST Spine requires Workstream 4D.
	FAST Planning assists the scan and reconstruction planning, based on a topogram, to provide an easier, faster and standardized workflow in CT scanning. FAST Planning features the selection of the anatomical region of interest from a list prospectively defined scan and reconstruction ranges, automatic detection of the scan region(s) of interest and proposal of corresponding scan range(s) in the topogram (in a narrow or wide lateral FOV), optimized FOV and automatic iso-center adaptation for Head scans.
	Advanced Vessel Analysis (AVA) with semi-automated stenosis quantification* - Automated workflow and guided workflow - Fast centerline definition. - Display curved MPR, curved MIP. - Automated measurement tools including vessel cross-section and lumen area. - Automated reporting of all measurements in DICOM format for PACS or in MS-Word format
	syngo Circulation PE Detection Basic allows the optimal display of pulmonary CTA data. The detection of pulmonary emboli is facilitated and findings can be reported into the syngo Circulation reporting function allowing a combined report for acute chest pain. The vessel aligned MPR (vaMPR) functionality allows a rapid evaluation of any pulmonary vessel. By simply moving through the vessels course a cross-sectional view of the respective position is updated. This allows the exact definition of the extent of pulmonary blockages. Measurements as well as dedicated reporting functionality allows the quick and exact localization and occlusion grade.
	Quantitative evaluation through - Automatic contour tracing of the lung tissue - Display of CT values in a histogram - Mean values, standard deviation, area, FWHM in tabular form - Volume calculation - Automatic (peripheral, central, horizontal) or interactive segmentation of the lung with separate evaluation - Definition of HU intervals and calculation of the area - Percentiles

/ Product	Description
(Continued)	- Color–coded display of HU subranges and Percentiles on the lung image.
	CT, MR, NM, or PET images are accepted as input for image fusion. Studies can be done with the same modality or with different modalities **Registration Algorithms:** - easy-to-use visual alignment with 6 degrees of freedom (3x translation, 3x rotation) - landmark based registration with convenient landmark editor for point-based registration using anatomical landmarks - storage of transformation matrix after registration for later retrieval with datasets **Visualisation Techniques:** - side by side visualisation of both datasets with correlated pointer and correlated scrolling with dog ears - 2D alpha-blending in monochrome or pseudo-color with adjustable balance between the two superimposed data sets.
	The application computes a bone subtracted volume dataset maintaining all information about vascular and soft tissue structures for further processing. The result of the application is a new CTA volume without bones but maintaining all other information for further processing in the Neuro DSA (Digital Subtraction Angiography) CT application or any other suitable application. **Workflow** - The completely automated algorithm makes this application easy to use - The NECT dataset can either be reconstructed from a standard spiral CT scan acquired for diagnostic purposes or from an additional low dose NECT scan - CTA dataset will be loaded first, followed by either a volume dataset without contrast media (NECT) or a calculated dataset (Neuro DSA dataset) - Calculation subtracts both scans - During evaluation, toggling between CTA dataset and Neuro DSA dataset is possible **Image display** - Display settings in VRT and MPR modes (thick and thin MPR, MIP, thin MIP) are supported **Documentation** - *syngo* filming and saving can be used to save result images in the database The application computes a bone subtracted volume dataset maintaining all information about vascular and soft tissue structures for further processing. The result of the application is a new CTA volume without bones but maintaining all other information for further processing in the Neuro DSA (Digital Subtraction Angiography) CT application or any other suitable application.
	Software license enabling system to support Enhanced User and System management, including: - User authentication to prohibit unauthorized access - Privileges to define user/role based functionality - Permissions to control data access - Audit trails to log system and data access.
	syngo CT Oncology is a comprehensive software solution designed to fast-track routine diagnostic oncology, staging, and follow-up. It provides a range of fully automated tools specifically designed to support physicians in the detection, segmentation, and evaluation of suspicious lesions including dedicated tools for lung, liver, and lymph node assessment. It also offers a fully automated follow-up protocol and features LungCAD (computer assisted detection). *syngo* CT Oncology also facilitates functional imaging offering fusion of PET with CT data.

Part No. / Product	Description

(Continued)	**Image Display**
	- Dual monitor
	- Simultaneous display of up to eight datasets
	- Flexibly configurable 4-segment screen layout
	- 3D slab display for cine mode in MPR or MIP technique
	- VRT with highlighted findings
	- 3D volume-of-Interest display for the selected lesion
	Workflow
	- Detection and segmentation of lesions – LungCAD – fully automated detection of lung nodules via computer assisted detection
	   - Automated segmentation of suspicious lesions throughout the body
	   - Dedicated segmentation tools for lung and liver lesions and lymph nodes
	- Quantitative analysis with fully automated calculation of lesion
	   - Volume
	   - RECIST and WHO parameters
	   - Extension along axial direction
	   - Longest 3D diameter
	   - HU histogram of the nodule
	   - Average and standard deviation of density in HU
	   - Total tumor burden
	- Follow-up
	   - Load a total of eight datasets from two different time points for follow-up or multiphase studies
	   - Auto-registration of datasets
	   - Auto-get counterpart lesion finding
	   - Computer generated growth rates
	Image Fusion
	- Workflow
	   - Quick first visual alignment with six degrees of freedom (3 x translation, 3 x rotation) with direct pan and zoom
	   - Automatic registration based on mutual information considering similarity of volume datasets
	- Visualization
	   - Side-by-side display of both datasets with all available rendering types such as MPR, MIP, MIP thin
	   - 2D alpha blending in monochrome or pseudo-color with adjustable balance between the superimposed datasets to optimize representation
	   - 2D alpha blending of thin and thick MPRs
	   - Advanced alpha blending with definition of individual visibility thresholds for model and reference dataset
	   - Fusion of two datasets with MIP presentation
	   - Support of NM and PET data by displaying Standardized Uptake Values (SUV)
	   - Pixel lens support on fused images; PET measurements and calculations are done in SUVs
	   - Optimized direct windowing of both datasets with middle mouse button
	   - Storage of fused result images as secondary capture images
	Documentation and Reporting
	- Flexible, comprehensive reporting
	- Specific details such as the location, morphology, and characteristics of each lesion can be entered together with images
	- All information entered is saved as DICOM SR data
	- Different output formats (e.g. Excel, PDF and HTML)

	For image preview thick slices can be used while pathological processes should be evaluated using thin slices to achieve optimum results. CT data can be visualized in axial, sagittal and coronal orientation using MIP, MPR or VRT. Special tools allow the semiautomatic accurate measurement of the size and diameter of pulmonary nodules.

/ Product	Description
(Continued)	The result can be assigned to a lung segment. Data of previous examinations can be loaded and compared with those of the current examination. The application is fully DICOM compatible. ·Freely selectable visualization of the CT data set using MIP, MPR or VRT. Freely selectable slice orientations: axial, sagittal and coronal. Evaluation of the data set in freely selectable slice thicknesses based on a high-resolution, low-dose scan and a thin slice reconstruction. Automatic or manual segmentation of pathological pulmonary processes. Differentiation between pathological nodules and vascular structures by interactive MPR rotation of suspected lesions. Tools for the accurate measurement of the size of pulmonary nodules. Optimal support of follow-up examinations; previous results can be loaded into the Viewer for a comparative evaluation. Automatic reporting with configurable templates which support all clinically relevant information; full DICOM compatibility.
	It offers a computer assisted detection and is designed to increase diagnostic confidence by automatically displaying markers on possible pulmonary lesions, combined with the analysis and automatic follow-up tools of the *syngo* LungCARE software package. syngo Lung CAD CT can simplify and expedite the diagnostic workflow. *syngo* Lung CAD CT can help to increase the detection of actionable lesions due to an enhanced computer assisted nodule detection algorithm with streamlined workflow for marker overview and navigation. It is an option to syngo Lung CARE CT
	syngo Colonography CT is a non-invasive diagnostic tool for CT and MR data which can be used to locate and evaluate lesions in the colon. *syngo* Colonography offers: - Non-invasive low dose Colonography (CT). - Simultaneous reading of prone and supine studies - Simultaneous reading of two datasets for follow up studies - Simultaneous reading of contrast and non contrast studies - Easy visualization of extra colonic findings – useful for staging procedures. - Real-time 3D virtual endoscopic viewing. - Accurate measurement of polyp sizes and customized reporting. - Real-time synchronization of prone/supine exams - Automated marking of unseen areas.
	syngo Colonography PEV is a fully automated computer assisted second reading tool. Results are automatically processed off-line when the dataset is sent to the syngo MMWP. The results are ready to be reviewed and assessed when the user loads the data set. *syngo* Colonography PEV will automatically read both prone and supine studies consecutively. PEV markers presented in a list and the user can automatically jump through the PEV marked polyp in the 3D endoscopic and MPR views when a specific marker is selected. Automatic size measurement tools for accurate polyp measurement Automatic lesion marker list with intuitive, customizable reporting tools *syngo* Colonography PEV is an option for *syngo* Colonography.
	Up to (24) hours of onsite training, scheduled consecutively (Monday – Friday) during standard business hours to provide to imaging professionals a comprehensive understanding of dose awareness, utilization, and protocol optimization on their Siemens CT scanner. Main objectives are to review dose reduction strategies as pertinent to the customer's CT scanner, to demonstrate adaption of CT parameters to the patient following the ALARA principle-keeping dose at the lowest possible level while deriving the appropriate diagnosis for adults and children. This educational offering must be completed (12) months from purchase. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund. Cost: $6500.00
	The unique STRATON X-ray source utilizes an electron beam that is accurately and rapidly deflected, creating two precise focal spots alternating 4,608 times per second. This doubles the X-ray projections reaching each detector element. The two overlapping projections result in an oversampling in z-direction. The resulting measurements

/ Product	Description
(Continued)	interleave half a detector slice width, doubling the scan information without a corresponding increase in dose. Siemens' proprietary UFC (Ultra Fast Ceramic) detectors and the corresponding 128-slice detector electronics enable a virtually simultaneous readout of two projections for each detector element – resulting in a full 128-slice acquisition. This sampling scheme is identical to that of a 128 x 0.3 mm allowing for reconstruction of 384 slices using 0.1 mm reconstruction interval increment. z-Sharp Technology, utilizing the STRATON X-ray sources and the UFC detectors, provides scan speed independent visualization of 0.33 mm isotropic voxels and a corresponding elimination of spiral artifacts in the daily clinical routine at any position within the scan field.
	Stellant D Dual Head / Dual Flow injector – ceiling/long mounted. The Stellant D CT injector is a dual syringe injection system that enables clinicians to perform the most critical CT contrast exams, including cardiac CT and coronary CTA. Medrad's DualFlow technology gives the user the ability to inject both contrast and saline at the same time. - Real-time display of injection pressure in graph form. - Snap-on / twist-off syringe design. - Automatic plunger advance and retract when attaching and detaching syringes. - Automatic filling and priming with the touch of a button. - Stores and recalls up to 32 protocols. - Multi-phase programming (and patented Hold/Pause feature) - Programmable pressure limit - Ceiling Mount length (28'-46' / 75 cm-117cm) Installation, applications and one year warranty provided by Medrad. This product has been tested and verified for compatibility with the following Siemens' products: SOMATOM Definition, Sensation, Emotion and Spirit. Compatibility with other products cannot be guaranteed and used w/any other products may void service contracts and/or system warranties. Additional Options Available: M2SCTXDS700C - MEDRAD XDS™ extravasation detector – Ceiling M2SCTUFKP3TC - MEDRAD P3T Cardiac
	P3T Abdomen enables clinicians to automatically calculate and deliver personalized contrast injection protocols. It is indicated for use with CT imaging of abdominal organs (i.e. liver, pancreas, and kidneys). The P3T Abdomen automatically adjusts contrast volume based on systematic scientific methods, according to patient, procedure, and prescribed physician parameters. P3T Abdomen facilitates consistency amongst clinicians in delivering a personalized contrast injection protocol. P3T Abdomen aids in patient safety by tailoring contrast volume according to unique patient-imaging needs. Added safety constraints on Maximum Iodine Load and Maximum Flow Rate will help ensure individualized protocols are compliant with a clinician's practice. One year warranty, installation, and applications included and provided through Medrad.
	Eaton Surge Protective Device (SPD) Panel, 250kA per phase rating, 277/480VAC Wye, Three Phase (4W+G), Surge Counter, Dimensions 12.05"H x 7.47"W x 6.69" D, Weight: 13.5 lbs, 10 Year Limited Warranty