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XR CT, VAMC HINES, IL
PO# 578-B78022

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SOMATOM Definition AS - New Scalable Configuration

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

Qty	Part No.	Item Description
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1

SOMATOM Definition AS(Open 20 RT)

CT Excellence for Radiation Oncology

The SOMATOM Definition AS (AS Open, 20-slice configuration) is especially designed for the specific needs of radiation therapy planning for advanced treatment methods such as conformal, IMRT or stereotactic. The large bore of 80cm and the accurate table alignment allow for high precise patient positioning in typical treatment positions. In the HD Field of View outside the scan Field of View, objects are visualized with an image quality suited for radiation therapy planning. Besides advanced routine CT examinations the SOMATOM Definition AS (AS Open, 20-slice configuration) offers a number of dedicated RTP functionalities making it the first high-end CT system to cover the needs of both, diagnostic radiology and radiation therapy customers. The scanner comes with the future built in and can be upgraded to enhance your clinical practice including 64 slices, 4D motion management, CT perfusion or interventional procedures.

Using Siemens' unique STRATON tube the SOMATOM Definition AS has neither warm-up nor cooling delays and can provide fast sub-millimeter volume coverage and a high rotation time for excellent temporal resolution.

Additionally, its large bore of 80 cm and a table load capacity of up to 307 kg (optional) opens CT to all patients, meaning that virtually no patient is excluded and even clinically challenging cases like in the ED or bariatric patients can be imaged rapidly from head to toe without difficulty.

1

RT Pro edition

The RT Pro edition of SOMATOM Definition (AS Open x-slice configuration) has been specifically designed with the needs of Radiation Therapy Professionals in mind and expand further the capabilities of the scanner. New features such as MARIS (Metal Artifact Reduction in Image Space) and the HD FoV Pro improve visualization so that images are even better suited for treatment planning. Motion management capabilities have been extended - supporting prospective, retrospective scanning and the creation of AverageCT and temporal MIPs images for easy assessment of tumor motion. Finally, this edition supports the use of Dual Energy as the basis for promising new avenues in Radiation Therapy.

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

Qty	Part No.	Item Description
		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		FAST Planning #AWP Direct, organ-based setting of scan and recon ranges for a faster and more standardized workflow
1		DoseMAP DoseMAP - Siemens CT Dose Management Program - creates transparency in dose values and makes it possible to assess the dose situation DoseMAP provides functionalities like CARE Analytics to report, document and analyze dose. It lets the user access dose values per case, per examination type, or per patient. DoseMAP may also help to protect our patients from over radiation - thanks to its alert function that warns the operator in case set dose thresholds are exceeded. Additionally, to protect the set dose levels, access to scan protocols can be restricted to prevent unauthorized changes to the scan parameters
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		CT Replacement AS SOMATOM Definition AS base configuration.
1		RT 4D option #MM The RT 4D option enhances the virtual simulation capabilities of the syngo MMWP RT Edition with the syngo InSpace 4D application.
1		Keyboard English #MM Keyboard in the above-mentioned language.
1		Rear cover incl. gantry panels Rear Cover including gantry control panels with control functionality from the backside.
1		Keyboard English Keyboard in the above-mentioned language.
1		Cooling System Air SOMATOM Definition AS air cooling for the dissipation of heat generated in the gantry.
1		Cable loom 25 m Cable loom used to connect the power distribution system (PDS) with the gantry.
1		Multi Purpose Table 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.

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1		RTP Table Top The carbon fiber RTP table top is especially designed for radio therapy use with a width of 530mm and is fully compliant with TG-66 guidelines with a deflection of <5mm. It features a position recognition system and HU equivalents and an indexing system for RT planning, and is also prepared for RPM mounting.
1		RTP Excellence Package The RTP excellence kit contains a high accuracy installation and adjustment procedure utilizing additional installation tools and a special laser phantom including the required laser system (both part of the package that remains at the customer site) to optimize the accuracy of the system. The RTP excellence kit also contains two index bars.
1		Computer Desk #AWP New CT desk to accommodate the control components and color monitor. Width: 1200 mm, Depth: 800 mm, Height: 720 mm.
1		Computer Desk, height adjust 110V The height adjustable table (710 mm to 1100 mm) supports optimal ergonomic working positions at the CT consoles. It allows users to switch between the dynamism of a standing desk and the comfort of a traditional desk.
1		Respiratory Gating & Triggering#AWP The Respiratory Gating and Triggering option is comprised of software components that allow for the capture and storage of a signal representing a patient's respiratory cycle during a spiral or sequence CT acquisition. With the Respiratory Gating feature, the respiratory data is synchronized with the CT acquisition data so that a user can freely select the point at which images are retrospectively reconstructed based on the corresponding respiration amplitude. With the Respiration Triggering feature, the user prospectively selects a point in the respiratory cycle at which sequence images will be acquired.
1		Open Interface Respiratory Gating Interface kit to connect to an external respiratory device. Important note: When using the Open Interface and the cable to connect the CT scanner to an external respiratory device the customer is responsible for this connection, if not using the ANZAI respiratory sensor system provided by Siemens/ANZAI or the RPM system provided by Varian.
1		CT Project Management A Siemens Project Manager (PM) will be the single point of contact for the implementation of your Siemens 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.

Qty	Part No.	Item Description
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		Initial onsite training 32 hrs GovOffset
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		Additional onsite training 16 hours Up to (16) 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		Additional onsite training 24 hours Up to (24) 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		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		DORADOselect red/wall w/CARINAiso
1		Installation, LAP Laser System
1		LAP Addl Training Day Application Training Visit, LAP LASER system including the following topics: Nomenclature of System Control Software and Hardware Simulation Marking Procedures Quality Assurance Procedure Duration (up to) four hours. Two to four weeks advance notice typically required for scheduling.
1		CT Slicker Thermoseal seams and flaps deflect fluids, reducing contaminant penetration into the cushion and table. Contaminants are retained on the tabletop or shunted to the floor. Cleanup is faster, more thorough, and contaminant build-up is reduced. Built using heavy, clear, micro matte vinyl, and top grade hook and loop fastening strips (Velcro) to better fit the specified table. Custom vinyl resists tears and minimizes radiologic interference. Latex free. Set includes CT Skirts.

Qty	Part No.	Item Description
		Includes warranty from RADSCAN Medical.
1		Low Contrast CT Phantom & Holder
1		Lung Imaging This SOMATOM Definition scanner offers two specific scan protocols to provide Lung Imaging at 1.3 mGy CTDI or greater and for use with post-processing applications
1		Surge Protective Device (SPD)
1		Additional User Manual Additional user manual for the above selected CT system.

**Incidental Services for SOMATOM Definition AS - New Scalable Configuration
on Quote Nr. 1-D8V4JD Rev. 0**

One complimentary biomedical tuition is included with the purchase of this system. This training must be completed before the end of the warranty period.

This educational offering must be completed by the later of (12) months from purchase of training or if applicable, completion of installation. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.

: One Additional Onsite Training 32 hours
Additional User Manual ()

Net Total of Incidental Services:

Net Total of System including Incidental Services:

OPTIONS on Quote Nr:

1-D8V4JD Rev. 0

OPTIONS for SOMATOM Definition AS - New Scalable Configuration

All items listed below are **OPTIONS** and will be included on this system **ONLY** if initialed: (See Detailed Technical Specifications at end of Proposal.)

Qty	Part No.	Item Description
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, homogeneity, 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 Iterative Reconstruction FAST Iterative Reconstruction allows a fast reconstruction performance in clinical routine with Sinogram Affirmed Iterative Reconstruction (SAFIRE).

FINANCING: The equipment listed above may be financed through Siemens. Ask us about our full range of financial products that can be tailored to meet your business and cash flow requirements. For further information, please contact your local Sales Representative.

ACCESSORIES: Don't forget to ask us about our line of OEM imaging accessories to complete your purchase. All accessories can be purchased or financed as part of this order. To purchase accessories directly or to receive our accessories catalog, please call us directly at 1-888-222-9944 or contact your local Sales Representative.

COMPLIANCE: Compliance with legal and internal regulations is an integral part of all business processes at Siemens. Possible infringements can be reported to our Helpdesk "Tell us" function at www.siemens.com/tell-us.

CT Warranty Information

Product (New Systems and "ECO" Refurbished Systems Only)	Period of Warranty ¹	Coverage	
CT System (not including consumables)	12 months	Full Warranty (parts & labor, including ALL tubes)	

Following parts will include warranty as listed below:

Vectron	Prorated to a maximum of 160,000 scan-seconds or 12 months whichever occurs first	Prorated credit given to customer against replacement cost	credit percentage = $(160,000 - \text{scan-seconds used}) / 160,000 * 100$
Straton	Prorated to a maximum of 160,000 scan-seconds or 12 months whichever occurs first	Prorated credit given to customer against replacement cost	credit percentage = $(160,000 - \text{scan-seconds used}) / 160,000 * 100$
Dura 181, 202, 302, 352	Prorated to a maximum of 130,000 scan-seconds or 12 months whichever occurs first	Prorated credit given to customer against replacement cost	credit percentage = $(130,000 - \text{scan-seconds used}) / 130,000 * 100$
Dura Akron B tubes	Prorated to a maximum of 150,000 scan-seconds or 12 months whichever occurs first	Prorated credit given to customer against replacement cost	credit percentage = $(150,000 - \text{scan-seconds used}) / 150,000 * 100$
Dura Akron Q tubes	Prorated to a maximum of 120,000 scan-seconds or 12 months whichever occurs first	Prorated credit given to customer against replacement cost	credit percentage = $(120,000 - \text{scan-seconds used}) / 120,000 * 100$
Dura Akron 422 tubes	Prorated to a maximum of 150,000 scan-seconds or 12 months whichever occurs first	Prorated credit given to customer against replacement cost	credit percentage = $(150,000 - \text{scan-seconds used}) / 150,000 * 100$
Dura Akron 688 tubes	Prorated to a maximum of 150,000 scan-seconds or 12 months whichever occurs first	Prorated credit given to customer against replacement cost	credit percentage = $(150,000 - \text{scan-seconds used}) / 150,000 * 100$
Stellar Detector Upgrade	12 months	Parts and Labor – Detector Only	
Consumables	Not covered		

Post-Warranty (after expiration of system warranty) – Replacement parts only!

Items above	As described above, but parts only	As described above, but parts only	As described above, but parts only
Spare Parts	6 months	Parts only	

Note: Optional extended warranty coverage can be obtained by purchase of a service agreement.

¹ Period of warranty commences from the date of first use or completion of installation, whichever occurs first. In the event the completion of installation is delayed for reasons beyond Siemens' control, the stated warranty period shall commence 60 days after delivery of equipment.

Detailed Technical Specifications

SOMATOM Definition AS - New Scalable Configuration

Part No. / Product	Description
SOMATOM Definition AS(Open 20 RT)	<p>SOMATOM Definition AS (AS Open, 20-slice configuration) CT Excellence for Radiation Oncology</p> <p>The SOMATOM Definition AS (AS Open, 20-slice configuration) is especially designed for the specific needs of radiation therapy planning for advanced treatment methods such as conformal, IMRT or stereotactic. The large bore of 80cm and the accurate table alignment allow for high precise patient positioning in typical treatment positions. In the HD Field of View outside the scan Field of View, objects are visualized with an image quality suited for radiation therapy planning. Besides advanced routine CT examinations the SOMATOM Definition AS (AS Open, 20-slice configuration) offers a number of dedicated RTP functionalities making it the first high-end CT system to cover the needs of both, diagnostic radiology and radiation therapy customers.</p> <p>The scanner comes with the future built in and can be upgraded to enhance your clinical practice including 64 slices, 4D motion management, CT perfusion or interventional procedures.</p> <p>Using Siemens' unique STRATON tube the SOMATOM Definition AS can provide fast sub-millimeter volume coverage and a high rotation time of 0.33 seconds (optional) for excellent temporal resolution.</p> <p>But the ultimate goal is to provide medical professionals more time for patients while taking best care of their well-being. With this, the SOMATOM Definition AS (AS Open, 20-slice configuration) is set to raise the standard of patient-centric productivity with FAST CARE.</p> <p>SOMATOM Definition AS (AS Open, 20-slice configuration) System Overview</p> <ul style="list-style-type: none"> - Definition Gantry The SOMATOM Definition AS (AS Open, 20-slice configuration) is founded on Siemens' proprietary Definition scanner platform providing a very advanced gantry design with a large gantry bore of 80 cm diameter and a very fast rotation speed of up to 0.33 s (optional). - STRATON MX-P Tube The SOMATOM Definition AS (AS Open, 20-slice configuration) is built around Siemens' revolutionary STRATON X-ray source. Its direct oil cooling of the anode eliminates 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 high rotation speeds. <p>In addition, the STRATON Tube is equipped with the Adaptive Dose Shield: world's first dynamic tube collimation that protects the patient from clinically irrelevant radiation in every spiral scan.</p> <ul style="list-style-type: none"> - UFC Detector The UFC (Ultra Fast Ceramics) detector of the SOMATOM Definition AS (AS Open, 20-slice configuration) acquires 20 slices per rotation. - Power Generator The generator power of up to 80 kW delivers sufficient resources for every clinical challenge and thus helps to acquire exceptional image quality and save precious time from scan to diagnosis. - Patient table The patient table with a scan range of up to 200 cm (optional) and a load capacity of up to 307 kg (optional) in combination with the 80 cm gantry diameter of the SOMATOM Definition AS (AS Open, 20-slice configuration) virtually adapts to any patient independent of size or condition thus avoiding patient exclusions. - Extended Field of View In today's clinical environment, there are cases for which it is important to visualize areas outside of the normal 50 cm CT scan field. For this reason, special reconstruction algorithms have been created to allow for

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SOMATOM Definition AS(Open 20 RT)	<p>visualization of objects using a FOV up to 80 cm. This extra versatility was primarily created to assist with radiation treatment planning applications. The image quality for the area outside the standard 50 cm scan field does not meet the image quality specifications shown in the technical data sheet (non-diagnostic image quality). Image artifacts may be common in the area outside the normal 50 cm scan field, depending on the anatomy scanned.</p> <ul style="list-style-type: none"> - HD Field of View For radiation therapy settings or radiology environments providing radiation therapy planning (RTP), it is important to visualize areas outside of the regular 50 cm CT scan field with sufficient accuracy to precisely plan the radiation treatment. For this reason, special reconstruction algorithms have been created to allow for visualization of objects/for soft tissue using a FOV up to 65 cm with an image quality suited for RTP (e.g. contour recognition for dose calculation). Thus, it allows for more precise radiation therapy planning for obese patients and patients that are positioned outside the CT isocenter. The image quality for the area outside the standard 50 cm scan field does not meet the image quality specifications shown in the technical data sheet (non-diagnostic image quality). Image artifacts may be common in the area outside the 65 cm HD FoV, depending on the anatomy scanned. - FAST CARE With the introduction of Siemens' unique FAST CARE platform, the SOMATOM Definition AS (AS Open, 20-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 imaging by creating reproducible results, making diagnosis more reliable and reducing patient burden through streamlined examinations. For example FAST Spine (optional) automatically labels all vertebrae and discs after the data acquisition and prepares typical reconstruction ranges thus potentially saving up to 30 minutes in spine examinations. - Low Dose with CARE 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 Open, 20-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. - Clinical Applications Adaptive 4D Spiral With its unique Adaptive 4D Spiral scan mode (optional) the SOMATOM Definition AS (AS Open, 20-slice configuration) overcomes the coverage limitations in dynamic CT imaging when using a static detector and allows for up to 8 cm coverage in dynamic CT imaging. 3D Interventional Suite In addition the SOMATOM Definition AS (AS Open, 20-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. Neuro BestContrast Neuro head image quality is significantly improved with Neuro BestContrast, by optimizing grey/white matter differentiation without increase in radiation dose. <p>SOMATOM Definition AS (AS Open, 20-slice configuration) System specification in detail</p> <p>1. System Gantry and Detector: Aperture: 80 cm; power supplied via low-voltage slip ring.</p> <p>Scanning system: Adaptive Array Detector (AAD) systems based on UFC (ultra fast ceramics) with 14,720 elements, 20 detector electronic channels (DAS) utilized for up to 20 slices/rotation acquisition, and 1,472 measuring channels per slice (The measuring system can contain replacement components).</p>

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SOMATOM Definition AS(Open 20 RT)	<p>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 analysis of the surrounding image data. It reduces streaks and noise and maintains the correct HU values for large patients.</p> <p>Sequence acquisition modes: 20 x 0.6 mm, 2 x 1 mm, 6 x 1.2 mm, 12 x 1.2 mm, 16 x 1.2 mm, 1 x 5 mm, 1 x 10 mm.</p> <p>Spiral acquisition modes: 20 x 0.6 mm, 10 x 0.6 mm, 16 x 1.2 mm.</p> <p>Three laser light markers: Horizontal, sagittal, and vertical laser light that shows the isocenter position of the scan plane.</p> <p>2. Tube Assembly: Source: The STRATON high performance X-ray source provide direct oil cooling of the anode, eliminating the need for heat storage capacity (0 MHU). The resulting small and compact design (120 mm diameter) enables an unprecedented cooling rate of 7.3 MHU/min as well as the reliable performance when operating at a fast rotation time of up to 0.33 s (optional).</p> <ul style="list-style-type: none"> - STRATON high performance X-ray source - Tube current range: Single source 20-666 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° (optional), 0.9 x 1.1 mm/7° - Computer controlled monitoring of anode temperature - Multifan principle with flying focal spot - Adaptive Dose Shield <p>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. 80 kW, adjustable in fine steps.</p> <p>4. 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.</p> <p><i>syngo</i> Acquisition Workplace: The <i>syngo</i> 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 <i>syngo</i> platform, the <i>syngo</i> Acquisition Workplace is intuitive and user friendly. Computer system: High-performance computer with one Xeon QC6,700, 2.66GHz, NVIDIA Quadro FX1,700 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 1,280 x 1024 and has a wide viewing angle, features high contrast even under high ambient light conditions. Display light output stability is enabled by controlled backlight throughout the whole lifetime. Keyboard and mouse, 8 GB RAM, 146 GB 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 GB External Hard Drive Hi-Speed USB 2.0; Maxtor One Touch 160 GB External Hard Drive).</p> <p>5. CT Image Computer System: Reconstruction computer for the preprocessing and reconstruction of the CT raw data. The reconstruction computer contains a cluster of 2.2 GHz dual kernel high-performance processors performing the preprocessing and reconstruction of the CT data with up to 20 images per second. The raw data memory is 900 GB.</p> <p>6. Cooling System: SOMATOM Definition AS (AS Open, 20-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).</p> <p>7. syngo User Software:</p>

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SOMATOM Definition AS(Open 20 RT)	<p><i>syngo</i> features an intuitive and thus easy-to-learn user interface developed from prototypes in close cooperation with users. <i>syngo</i> visualizes the examination in individual process steps on so-called task cards, such as the patient registration or the 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.</p> <p>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 System (RIS) via DICOM Get Worklist functionality. The program enables very efficient working and enables 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.</p> <p>Examination card: The SOMATOM Definition AS (AS Open, 20-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 displays 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 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.</p> <p>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.</p> <p>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.</p> <p>3D card: The 3D task card comprises the User Interface for the operation of the MIP (Maximum Intensity Projection), SSD (Surface Shaded Display) and MPR (Multi-planar Reconstruction), and <i>syngo</i> VRT (Volume Rendering Technique) three-dimensional post-processing tools. Up to three thin-slice image sets from different patients can be loaded simultaneously on the 3D card environment and post-processed with MIP, SSD and MPR. The 3D card also features an intuitive and fast bone removal function for CTA post processing and presentation.</p> <p>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 around a definable axis, whereby the maximum CT values 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.</p> <p>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).</p> <p>Volume card: Volume scans of tissues and organs, based on a "region-growing" algorithm and interactive ROI definition.</p> <p>DynEva card: Software for dynamic evaluation of the contrast enhancement in organs and tissues, enabling the reconstruction of</p> <ul style="list-style-type: none"> - Time-density curves (up to 5 ROIs)

Part No. / Product	Description
SOMATOM Definition AS(Open 20 RT)	<ul style="list-style-type: none"> - Peak-enhancement images - Time-to-peak images. <p>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.</p> <p>Additional task cards available as an option.</p> <p>8. Examination and Evaluation Functions:</p> <p>Topogram: Scanning perspectives: a.p., p.a., lat.; length of scan field: 128 - 1,574 mm (optional up to 1,974 mm), width of scan field: 512 mm, 1.5 - 16s (optional 20.22 s). The topogram can be switched off manually when the desired examination length is reached.</p> <p>Tomogram: Scan field size: 50 cm. Standard rotation times (360°): 0.33 (optional), 0.5 and 1 seconds.</p> <p>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</p> <p>Spiral: Scanning technique for continuous volume scans with continuous table feed in multirotation mode. Max. scan time 100 seconds with full low-contrast resolution. Volume length 1,540 mm (optional 1,940 mm) 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 pre-definable 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: 0.33 s (optional), 0.5 s and 1 s.</p> <p>Slice thickness in spiral: 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.</p> <p>Adaptive 4D Spiral Plus (optional): Continuous multirotational data acquisition with continuous smooth bi-directional table movement for quantitative evaluation and graphical display of time-density curves over entire organs. It facilitates volume perfusion studies with a coverage of up to 8 cm.</p> <p>Dynamic: Program for functional dynamic examinations. Serial scanning technique in one slice position with variable scans cycle times.</p> <p>Multiscan spiral examination without table feed: Continuous multirotational data acquisition in one slice position. Quantitative evaluation and graphical display of time-density curves.</p> <p>The intelligent algorithm Neuro BestContrast improves native head image quality with a special focus on 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.</p> <p>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.</p> <p>Image reconstruction and storage: Image reconstruction in full resolution (512 x 512 matrix) takes place during the examination with up to 20 images per second (optional), with full cone beam reconstruction 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.</p>

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SOMATOM Definition AS(Open 20 RT)	<p>Image display: 1,024 x 1024 display matrix; screen splitting configurable up to 64 image segments; CT value scale from -1,024 to +3,071 HU. For very dense objects, the CT value scale can be extended from -10,240 to +30,710 HU (extended CT scale) e.g. for suppressing metal artifacts.</p> <p>Image evaluation: Complete software-controlled image evaluation program for all diagnostic requirements.</p> <p>CINE Display: Dynamic display technique for the visualization of time or volume series. A series of up to 1,024 images can be displayed at a frame rate of at least 30 f/s. Automatic or interactive mouse-operated control.</p> <p>Multitasking functions: Simultaneous processing during operation of the scanner.</p> <p>Real-time Display: Image reconstruction in pace with the examination in full image quality (512 x 512 matrix) with up to 20 images/second (with full cone beam reconstruction and z-Sharp Technology).</p> <p>METRO Display: Simultaneous display, processing and evaluation of images from other patients while the current patient is being scanned.</p> <p>METRO Documentation: Simultaneous documentation of images from any previously examined patient while the current patient is being scanned.</p> <p>METRO Copy: Automatic transfer of image data to the <i>syngo</i> CT Workplace (optional) or a DICOM network node.</p> <p>9. Network Module: Enables connection to a local Ethernet network for communication with network printers, diagnostic and therapy workstations, RIS systems and teleradiology routers. Scope of function:</p> <ul style="list-style-type: none"> - Freely configurable network stations - Unlimited selection of stations - Support of DICOM 3.0 standard (Digital Imaging and Communications in Medicine) for the transfer of information between DICOM-compatible units from different manufacturers. The scope of functionality is described in detail in the DICOM Conformance Statement and comprises the following standard functions: - DICOM Send/Receive - DICOM Query/Retrieve - DICOM Print - DICOM Get Worklist (HIS/RIS) - DICOM Study Split - DICOM Storage Commitment - DICOM MPPS (Modality Performed Procedure Step) - Image data exchange with MR and therapy units as well as workstations and teleradiology routers which support the DICOM 3.0 standard - Exchange of CT images with other units of the Siemens SOMATOM CT family via the DICOM 3.0 standard - Simultaneous documentation of images of any previously examined patient during the current examination on a selectable network printer that supports "DICOM Print" - Connection to RIS/HIS systems (DICOM Worklist) for the transfer of patient lists - 1-Gigabit Network Card <p>10. 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.</p> <p>Adaptive Dose Shield: world's first dynamic tube collimation that protects the patient from clinically irrelevant radiation in every spiral scan.</p> <p>CARE Dose4D With automatic, real-time X-ray dose management for all scan modes, CARE Dose4D provides the minimal X-ray dose level needed to obtain optimal image quality. The dose is determined from extensive computer analysis of the topogram image and also from the data collected on a real time basis during every scanned slice. This dual stage</p>

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SOMATOM Definition AS(Open 20 RT)	<p>automatic approach enables optimal image quality at the lowest possible X-ray dose. With this method of dose control, the initial tube current for every axial slice position is determined from the single topogram image. Then, during the data acquisition for each axial slice, the X-ray attenuation values are closely monitored and the tube current is adjusted, on a real time basis, to optimize the X-ray dose level for the specific organs and anatomy in the X-ray path.</p> <p>CARE Dose4D provides a number of clinical benefits:</p> <ul style="list-style-type: none"> - Significant X-ray dose reduction possible for all body regions scanned compared with standard sequence or spiral scanning. Dose savings of up to 68% are possible with CARE Dose4D. - Consistent, optimal image quality with the X-ray dose level uniquely tailored for every patient and for every anatomical region. - Thinner axial slices and longer scan ranges possible because of reduced tube loading through optimized dose delivery. - Ultra-low dose examinations for pediatric patients. <p>CARE kV First automated, exam-specific voltage setting to optimize contrast-to-noise-ratio and significantly reduce dose.</p> <p>CARE Child Dedicated pediatric CT imaging, including industry's first 70 kV scan modes and specific CARE Dose4D curves and protocols to significantly lower radiation.</p> <p>Pediatric Protocols Special examination protocols with 70 or 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.</p> <p>CARE Profile Visualization of the dose distribution along the topogram for precise dose assessment prior to the scan.</p> <p>CARE Dashboard Visualization of activated dose reduction features for each scan range to actively analyze and manage the dose saving potential.</p> <p>CARE Filter Specially designed X-ray exposure filter installed at the tube collimator.</p> <p>CARE Topo Real-time topogram, Manual interruption possible once desired anatomy has been imaged.</p> <p>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 enhancement reaches its predefined threshold, the spiral scan is triggered automatically. License for software use on one modality.</p> <p>11. 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:</p> <p>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.</p> <p>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</p>

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SOMATOM Definition AS(Open 20 RT)	<p>scope of the service agreement.</p> <p>Note on software use: Use of the entire integrated software, including optional software programs, is restricted exclusively to the application with this system.</p> <p>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.</p> <p>Welcome Package The delivery includes a Siemens' Welcome Package</p>
RT Pro edition	<p>The RT Pro edition of SOMATOM Definition (AS Open x-slice configuration) has been specifically designed with the needs of Radiation Therapy Professionals in mind and expand further the capabilities of the scanner. New features improve visualization so that images are even better suited for treatment planning. Motion management capabilities* have been extended and finally, this edition is the basis for promising new avenues in Radiation Therapy.</p> <p>Improved visualization: MARIS (Metal Artifact Reduction in Image Space) is a user-selectable method that reduces artifacts caused by metal in the body such as implants, without compromising HU nor geometric accuracy. HD Fov Pro improves further the HD FoV capabilities by providing improved quality of the body outline outside of the scan FoV, in the case of large patients. The resulting improvements provide you with better visualization of your patient and thereby simplify and streamline your further tasks such as treatment planning.</p> <p>Motion Management Pro*: The RT pro edition brings comprehensive motion management capabilities to your CT. The scanner is able to perform prospective as well as time-, phase- or amplitude- based retrospective 4D imaging and supports a range of image manipulation tools such as the generation of AverageCT or temporal MIP for a simple evaluation of tumor motion.</p> <p>Promising new applications*: With the RT Pro edition, you can now access the world of Dual Energy on your Large Bore. Similarly to the broad range of new applications in Radiology enabled by Dual Energy, this capability offers the ability to do Metal Artifact Reduction.</p> <p>*Option</p>
FAST CARE Platform	<p>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 maximize 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.</p> <p>The FAST CARE platform consists the following features:</p> <p>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.</p> <p>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%.</p> <p>CARE Child: Dedicated pediatric CT imaging, including 70 kV scan modes and specific CARE Dose4D curves and protocols</p> <p>CARE Profile: Visualization of the dose distribution along the topogram prior to the scan</p> <p>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</p> <p>CARE Dose Configurator: Enhancement of Siemens' renowned real-time dose modulation CARE Dose4D,</p>

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FAST CARE Platform	<p>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.</p> <p>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.</p> <p>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.</p>
CARE Child	<p>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.</p> <p>CARE Child consists of:</p> <ul style="list-style-type: none"> - dedicated 70 kV scan modes - new CARE Dose4D curves for children - respective Children Protocol utilizing these features
FAST Planning #AWP	<p>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.</p>
DoseMAP	<p>DoseMAP consists of three parts. These three parts in combination with each other deliver a complete and comprehensive dose management.</p> <p>Report Dose: Create transparency and document dose values.</p> <ul style="list-style-type: none"> - <u>DICOM SR Dose Reports</u>: DICOM structured file allows for the extraction of dose values (CTDIvol, DLP) - <u>DoseLogs</u>: Whenever a limit exceeds the set up reference dose levels (Dose Notification and Dose Alert) automatically a report is created on the system. The report can for example be used for audit purposes. <p>Analyze Dose: Assess the dose situation.</p> <ul style="list-style-type: none"> - <u>CARE Analytics</u>: makes it possible to set a query and retrieve DICOM SR Dose Reports. With CARE Analytics it is possible assess DICOM SR Dose Reports from different DICOM nodes and document dose data to get an insight in radiation dose per case or examination type, cumulative dose per patient or to start in-house dose reporting. Exported and structured dose information makes it possible to monitor the dose over time and gives an insight in the radiation values per examination type. Based on that outcome, measures may eventually be defined to reduce dose. - <u>CARE Dashboard</u>: Pre-examination dose check-up by showing an overview of all the used dose reduction features per scan. - <u>CARE Profile</u>: Pre-examination dose check-up by displaying the dose distribution prior to the scan at every z-position. <p>Protect Dose: Manage access to protocols and potentially protect patients from over-radiation</p> <ul style="list-style-type: none"> - <u>Access protection</u>: by setting a password it is only possible to change and access the scan protocols in the Scan Protocol Assistant by authorized staff members only. - <u>Dose Notification and Dose Alert</u>: Both functionalities may help to protect from over-radiation and warn the operator in case set dose thresholds are exceeded.

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DoseMAP	<p>Dose Notification checks the dose values per chronicle entry. Dose Alerts checks the accumulated dose per z-position.</p>
RT 4D option #MM	<p>This package contains InSpace4D applications that provide interactive, real-time 3D and 4D viewing functionality using volume rendering techniques.</p> <p><u>syngo® InSpace 4D</u> InSpace provides interactive, real-time 3D and 4D viewing functionality using volume rendering techniques, and is suited particularly to radiologists for online diagnosis.</p> <p>The application provides interactive VRT performance using the standard graphics card, and supports also the optional "Volume Pro Graphics" accelerator card that further improves performance, gives large data set support and adds high quality lighting effects.</p> <p>Image data</p> <ul style="list-style-type: none"> - Image data from CT, MR and AX modalities - Up to 2000 images with a 512-matrix Volume Pro Graphics support - With standard graphics support, 512 images with a 512-matrix can be loaded without loss of image resolution - Loading of two image series simultaneously - 1on1, 2on1, and 4on1 layouts <p>User modes</p> <ul style="list-style-type: none"> - Beginner mode with a simplified user interface and an expert mode providing additional functionality <p>Image Rendering modes</p> <ul style="list-style-type: none"> - VRT, Color VRT, MIP, MinIP and MPR rendering - Thin slice renderings for VRT, MIP and MinIP - Lighting source variable (depending on hardware configuration) <p>Volume editing</p> <ul style="list-style-type: none"> - 3D Cine mode using single cut plane - Clip plane and box editing - ROI punching <p>Presets</p> <ul style="list-style-type: none"> - Iconized bookmarks, both series-specific and global. - Iconized rendering presets, both series-specific and global. Presets are linkable to the series description <p>Output</p> <ul style="list-style-type: none"> - Radial ranges, including macro range definitions - 2D and 3D measurements, measurement grid and annotation - AVI format export with optional compression - TIFF, PNG, BMP, JPEG image export - Send to film sheet.
RTP Excellence Package	<p>Installation procedure:</p> <ul style="list-style-type: none"> - Insuring accurate gantry orientation utilizing digital water level technique - Orthogonal alignment of gantry and patient-table at highest level (orienting z-direction to scan plane) utilizing an installation laser in combination with precise marking lines on the table and additional adjustment tools - Orienting table plane (around cross(x) direction) to improve table-top deflection utilizing digital water level technique - Orienting table plane (around z-direction) to eliminate lateral deflection of table top (due to surface unevenness) utilizing digital water level technique. <p>Adjustment procedure</p>

	Description <p>Special alignment of gantry lasers utilizing a dedicated laser adjustment phantom for: Verification of parallel and orthogonal orientation of scan plane and laser-light planes during installation and daily QA Customer self adjustment of laser lights in case of deviance.</p>
RTP Excellence Package	
Respiratory Gating & Triggering#AWP	<p>CT Respiratory Gating and Triggering</p> <p>The Respiratory Gating and Triggering option is comprised of software components that allow for the capture and storage of a signal representing a patient's respiratory cycle during a spiral or sequence CT acquisition. With the Respiratory Gating feature, the respiratory data is synchronized with the CT acquisition data so that a user can freely select the point at which images are retrospectively reconstructed based on the corresponding respiration amplitude. With the Respiration Triggering feature, the user prospectively selects a point in the respiratory cycle at which sequence images will be acquired.</p> <p>Through the selection and reconstruction processes, organ motion artifacts caused by respiration are minimized or eliminated and a better visualization and localization is possible resulting in more accurate assessment of tumor and organ motion, their position, size, and volume during respiration.</p> <p>These applications generate 4D CT datasets that can be used to create more accurate treatment plans and also for the delivery of respiratory-triggered radiation therapy.</p> <p>The Respiratory Gating application is integrated within the CT Navigator acquisition workstation. Special scan protocols that allow a scan pitch factor as low as 0.1, thereby creating very detailed data sets, are included. With this option, up to eight reconstruction jobs can be automatically executed upon completion of a scan, each using different gates based on respiration amplitude.</p> <p>Additionally, the user can edit the respiration curve to remove or add data points where gates are inconsistent or for when a patient has moved or coughed.</p> <p>This option includes the following components:</p> <ul style="list-style-type: none"> - Software license for respiratory gating and triggered CT scanning - Special respiratory gated spiral scan protocols - Special respiratory triggered sequence scan protocols - Special system software that provides for CT triggered acquisitions based on a selected point in a patient's respiration cycle. - Special system software that provides for simultaneous and synchronized acquisition of spiral CT data along with respiratory signal data.
Installation, LAP Laser System	<p>LAP two-day installation, calibration, and user training of CT-3 Laser Marking system in the Americas and Western Europe. Requires CT room to be prepared prior to on-site arrival of LAP installation team.</p>
Lung Imaging	<p>Lung Imaging</p> <p>This SOMATOM Definition scanner offers two specific scan protocols to provide Lung Imaging at 1.3 mGy CTDI or greater and for use with post-processing applications</p> <p>LungLowDose Uses CARE Dose 4D in conjunction with CARE kV and adaptive dose shield to provide imaging of the lung with a default scanner protocol set at 1.3 mGy CTDI. This protocol provides images from .6 mm and are acquired using .6 mm collimation and a z-sharp mm of 128X0.6 mm off. Default settings of a reference kVp of 120 and quality Reference mAs of 20 with rotation speed of .50 are used to achieve this dose. This protocol is set using a Kernel of B70f, B31F and B70F for axial viewing.</p> <p>LungCARE Uses CARE Dose 4D in conjunction with CARE kV and adaptive dose shield to provide imaging of the lung with a default scanner protocol set at 1.3 mGy CTDI. This protocol provides images from .6 mm and are</p>

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Lung Imaging	acquired using .6 mm collimation and a z-sharp mm of 128X0.6 mm off. Default settings of a reference kVp of 120 and quality Reference mAs of 20 with rotation speed of .50 are used to achieve this dose. This protocol is set using a Kernel of B80f, B31F and B60f to be automatically transferred and post-processed on a Siemens workstation.
Surge Protective Device (SPD)	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
SAFIRE #AWP (Optional)	<p>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.</p> <p>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.</p> <p>*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, homogeneity, 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.</p>