REQUESTING SERVICE: IMAGING

SHIP TO: SUPPLY WAREHOUSE

V.A. Medical Center

SUPPLY BUILDING #27

AVERILL DRIVE

HAMPTON, VA 23667

590-B60025

Qty	Item Description
1	**MAGNETOM Skyra - System** MAGNETOM Skyra is designed to provide you the versatility you need to meet the increasing demands in healthcare. Maximize 3T with its core technologies Tim(r) 4G and Dot(r), along with its comprehensive application portfolio and experience unique functionalities to increase patient comfort. Every case. Every day. System Design - Short and open appearance (173 cm system length and 70 cm Open Bore Design) to reduce patient anxiety and claustrophobia - Whole-body superconductive Zero Helium Boil-Off 3T magnet - Actively Shielded water-cooled Siemens gradient system for maximum performance - TrueForm Magnet and Gradient Design Tim 4G (Total imaging matrix in the 4th generation) for excellent image quality and speed - Siemens unique DirectRF(tm) technology enabling the all digital-in/ digital-out design - Dual-Density Signal Transfer Technology - Head/Neck 16 DirectConnect - Spine 24 DirectConnect - Body 6 - Flex Large 4 - Flex Small 4 - Flex Coil interface - Tim Coil interface Dot (Day optimizing throughput) for higher consistency, flexibility and efficiency - Dot Display - Dot Control Centers - Brain Dot Engine Tim Application Suite allowing excellent head-to-toe imaging - Neuro Suite

Qty	Item Description

- Angio Suite
- Cardiac Suite
- Body Suite
- Onco Suite
- Breast Suite
- Ortho Suite
- Pediatric Suite
- Scientific Suite

Further included
- High performance host computer and measurement and reconstruction system
- Siemens uniqueTimCT FastView localizer and CAIPIRINHA
- syngo MR software including
- 1D/2D PACE
- BLADE
- iPAT²
- Phoenix
- Inline Diffusion
- WARP
- MDDW (Multiple Direction Diffusion Weighting)
- CISS
- DESS

The system (magnet, electronics and control room) can be installed in 31 sqm space. For system cooling either the Eco Chiller options or the Separator is required.

1

Tim [204x24] XQ Gradients #Sk

Tim [204x24] XQ-gradients performance level

Tim 4G with its newly designed RF system and innovative coil architecture enables high resolution imaging and increased throughput.

Up to 204 simultaneously connected coil elements allow in combination with the standard 24 independent RF channels for the most flexible parallel imaging and support the most demanding applications.

Maximum SNR is ensured through the new Tim 4G matrix coil technology.

XQ - gradients

The XQ- gradients are designed combining high performance and linearity to support clinical whole body imaging at 3T. The force compensated gradient system minimizes vibration levels and acoustic noise. The XQ gradients combine 45 mT/m peak amplitude with a slew rate of 200 T/m/s.

1

PC Keyboard US english #Tim

Standard PC keyboard with 101 keys.

1

Pure White Design #T+D

The MAGNETOM Aera / MAGNETOM Skyra design is available in different light and appealing variants which perfectly integrates into the different environments. The color of the main face plate cover of the Pure White Design Variant with the integrated Dot Control Centers and the unique Dot Display is brilliant white surrounded by a brilliant silver trim. The asymetrical deco area on the left side is colored white matte and also with a brilliant surrounding silver trim.

The table cover is presented also in the same color and material selection.

1

Tim Dockable Table #Sk

The Tim Dockable Table is designed for maximum patient comfort and smooth patient preparation. Tim Dockable Table can support up to 250 kg (550 lbs) patients without restricting the vertical or horizontal movement.

Qty	Item Description
	The one step docking mechanism and the innovative multi-directional navigation wheel ensure easy maneuvering and handling. Critically ill or immobile patients can now be prepared outside the examination room for maximum patient care, flexibility and speed.
1	**SW syngo MR E11** syngo MR E11 software with new Dot features and applications. DotGO Go for consistent results, efficiently with Dot engines. Dot Cockpit The central tool to continuously build knowledge into standardized exam strategies and to make those available for every user in the MRI department. Dot Cockpit is the new starting point for every exam. - TGSE - WARP including VAT
1	**Quiet Suite #T+D** Quiet Suite enables complete, quiet examinations for neurology and orthopedics with at least 70% reduction in sound pressure levels.
1	**DotGO Routine Package #T+D** The DotGO Routine Package includes both: - Spine Dot Engine and - Large Joint Dot Engine. As a package they offer a comprehensive set of workflows with guidance and automation, for standardized image quality in Spine and MSK MR imaging. The Spine Dot Engine provides the functionality of Inline Composing and Tim Planning Suite for streamlining workflows in all spine imaging. Tools, such as auto-positioning and vertebral recognition with AutoAlign Spine, AutoCoverage and Spine Labelling support and optimize reproducibility for your cervical, thoracic and lumbar spine imaging for all clinical indications. The Large Joint Dot Engine enhances standardization of the knee, hip and shoulder workflows and optimizes reproducible image quality by incorporating automation tools, such as anatomically based auto-positioning (AutoAlign). Dedicated imaging techniques, such as Advanced WARP, are included and can help to expand the access of diagnostic MRI to a broader range of patient types.
1	**Composing syngo #Tim** This application provides dedicated evaluation software for creation of full-format images from overlapping MR volume data sets and MIPs (starting from syngo MR B13) acquired at multiple stages.
1	**FREEZEit Body MRI Package #T+D** FREEZEit Body Package contains two robust sequences for advanced body imaging: TWIST VIBE and StarVIBE. - TWIST VIBE is a new fast, high-resolution 4D imaging sequence for multi-arterial liver imaging. - StarVIBE is a motion insensitive VIBE sequence using a stack-of-stars trajectory.
1	**Inline Perfusion #3T** Automatic real-time calculation of Global Bolus Plot (GBP), Percentage of Baseline at Peak map (PBP), and Time-to-Peak map (TTP) with Inline technology.
1	**Neuro Perfusion Eval #T+D** Neuro Perfusion Evaluation syngo provides a task card for detailed post-processing of brain perfusion data sets. Color display of the relative Mean Transit Time (relMTT), relative Cerebral Blood Volume (relCBV), corrected rel CBV, and relative Cerebral Blood Flow (relCBF) is supported. Flexible selection of the Arterial Input Function (AIF) for more reliable analysis

Qty	Item Description
	taking into account the dynamics over time of the contrast agent enhancement. Furthermore a calculation of maps using automatically selected local Arterial Input Functions (AIF) is provided to reduce the amount of user interactions. The detailed evaluation of brain perfusion data sets generates parameter maps for TTP and PBP and for the hemodynamic parameters relMTT, relCBV, rel CBVcor and relCBF. These may show perfusion deficits and assist in the diagnosis and grading of e.g. vascular deficiencies and brain tumors.
1	**RESOLVE #T+D** RESOLVE is a diffusion-weighted, readout-segmented EPI sequence optimized towards high resolution imaging with reduced distortions. The sequence uses a very short echo-spacing compared to single-shot EPI, substantially reducing susceptibility effects. A 2D-navigator correction is applied to avoid artefacts due to motion-induced phase errors. This combination allows diffusion weighted imaging of the breast, prostate, brain and spine with a high level of detail and spatial precision.
1	**SWI #Tim** Susceptibility Weighted Imaging is a high-resolution 3D imaging technique for the brain with ultra-high sensitivity for microscopic magnetic field inhomogeneities caused by deoxygenated blood, products of blood decomposition and microscopic iron deposits. Among other things, the method allows for the highly sensitive proof of cerebral hemorrhages and the high-resolution display of venous cerebral blood vessels.
1	**Tim Whole Body Suite #T+D** Tim Whole Body Suite puts it all together. This suite enables table movement for imaging of up to 205 cm (6' 9") FoV without compromise. In combination with Tim's newly designed ultra highdensity array higher spatial and temporal resolution can be achieved along with unmachted flexibility of any coverage up to Whole Body. For faster exams and greater diagnostic confidence.
1	**TWIST syngo #Tim** This package contains a Siemens unique sequence and protocols for time-resolved (4D) MR angiographic and dynamic imaging in general with high spatial and temporal resolution. syngo TWIST supports comprehensive dynamic MR angio exams in all body regions. It offers temporal information of vessel filling in addition to conventional static MR angiography, which can be beneficial in detecting or evaluating malformations such as shunts. In case of general dynamic imaging, for example an increase in spatial resolution by a factor of up to 2 at 60 seconds temporal resolution (compared to conventional dynamic imaging) is possible due to intelligent k-space sampling strategies. Alternatively, increased temporal resolution at constant spatial resolution is possible.
1	**Shoulder 16 Coil Kit #Sk** The new Tim 4G coil technology with Dual Density Signal Transfer and SlideConnect Technolgy combines key imaging benefits: excellent image quality, high patient comfort, and unmatched flexibility. The Shoulder 16 Coil Kit for examinations of the left or right shoulder consists of a base plate and two different sized iPAT compatible 16 channel coils (Shoulder Large 16 and Shoulder Small 16). These will be attached and can be relocated on the base plate.The 16-element coils with 16 integrated pre-amplifiers ensure maximimum signal-to-noise ratio. Shoulder Large 16 and Shoulder Small 16 will be connected via a SlideConnect plug for fast and easy coil set-up and patient preparation.
1	**Hand/Wrist 16 #Sk** The new Tim 4G coil technology with Dual Density Signal Transfer and SlideConnect Technology combines key imaging benefits: excellent image quality, high patient comfort, and unmatched flexibility. Hand/Wrist 16 for examinations of the left or right hand and wrist region consists of a base plate and an iPAT compatible 16-channel coil and allows high resolution imaging of the wrist and the hand within one examination. Hand/Wrist 16 will be connected via a SlideConnect plug for fast and easy patient preparation.
1	**Foot/Ankle 16 #Sk** The new Tim 4G coil technology with Dual Density Signal Transfer and DirectConnect Technolgy combines key imaging benefits: excellent image quality, high patient comfort, and

Qty	Item Description
	unmatched flexibility. Foot/Ankle 16 for examinations of the left or right foot and ankle region consists of a base plate and an iPAT compatible 16-channel coil and allows high resolution imaging of the foot and ankle within one examination. Foot/Ankle 16 is a cable-less coil and will be connected via DirectConnect for fast and easy patient preparation.
1	**Tx/Rx 15-channel Knee Coil DDST #Sk** New 15-channel transmitter/receiver coil for joint examinations in the area of the lower extremities. Main features : - 15-element design (3x5 coil elements) with 15 integrated preamplifiers - iPAT-compatible - SlideConnect Technology
1	**Body 6 #Sk** Flexible, universal 6-channel receive coil with 6 integrated preamplifiers. Elements are arranged in 2 rows of 3 elements each. Main features: - Integrated operation with the Spine 24. - iPAT-compatible. - Dual-Density Signal Transfer. - SlideConnect(tm) technology for easy coil set up.
1	**syngo Security Package**
1	**Patient Supervision TV #T+D** The supervision solution is customizable and designed to address different site specific requirements. Up to 4 cameras can be optionally connected for patient supervision in the examination or waiting room. This package contains a special video camera for monitoring the patient during an MR examination, conveniently mounted on the wall of the examination room. The information is displayed on an LCD monitor in the control room, included in this kit.
1	**UPS Cable #Tim** Power cable for connecting the UPS Powerware PW 9130-3000i (14413662) to the ACC of MAGNETOM Tim and MAGNETOM Tim+Dot systems for backing up the computer. Standard cable length: 9 m.
1	**UPS Powerware PW9130G-3000T-XLEU** UPS system Eaton PW9130G-3000T-XLEU for MAGNETOM Tim, MAGNETOM Tim+Dot and MAGNETOM Symphony systems for safeguarding computers. Power output: 3.0 kVA / 2.7 kW Bridge time: 5 min full load / 14 min half load Input voltage: 230 VAC
1	**UPS Battery module** UPS battery module Eaton PW 9130N-3000T-EBM for all MAGNETOM Tim, MAGNETOM Tim+Dot and MAGNETOM Symphony systems for safeguarding computers. Extension for: PW9130i-3000T Battery type: Closed, maintenance-free Extension of the bridge time to: 24 minutes with a module Dimensions (H x W x D): Battery module: 346 x 214 x 412 mm incl. bracket set

Qty	Item Description
	Weight: approx. 50 kg
1	**Additional Set of Manuals** Additional set of manuals for the above selected MR system.
1	**MR_GOV_RIG_INSTL**
1	**T+D Preinstall kit for dockable table**
1	**Standard Cryogens**
1	**MR 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	**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	**Follow-up training 32 hrs** Up to (32) hours of follow-up on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. 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	**MR Dot Govt. Training Class (No T&L)** 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 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	**GOV'T ONLY - MR Training Class** 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	**Armrest #MR**

Qty	Item Description
1	**KKT ECOCHILLER 133L** The KKT ECO 133 -L chiller is a dedicated 20°C cooling system for MAGNETOM Aera and MAGNETOM Skyra which automatically adapts to the different cooling requirements (e.g. system in operation, standby, ...) to reduce the energy consumption for cooling. The cooling system must be used in combination with the IFP (Interface Panel), if there is no on-site chilled water supply at all. The IFP is included in the scope of supply.
1	**Chiller Start-up and Warranty for TIM**
1	**EmpowerMR Injector System**
1	**MR Wall sign -English** Highly durable 1mm PVC wall signs with high-tack, double-back tape. Sticks to most any surface. English. 12" x 18".

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.

Offset Part 14407354 Additional Set of Manuals

Offset Part MR_FOLLOWUP_32 Follow-up training 32 hrs

OPTIONS

OPTIONS

Qty	Item Description
1	**Medrad Prostate EndoCoil f.3 T MR(5pcs)**
1	**Native syngo #Tim** Integrated software package with sequences and protocols for non-contrast enhanced 3D MRA with high spatial resolution. syngo NATIVE particularly enables imaging of abdominal and peripheral vessels and is an alternative to MR angiography techniques with contrast medium, especially for patients with severe renal insufficiency.
1	**Abdomen Dot Engine #T+D** The Abdomen Dot Engine: Personalized Exam Strategies - Guidance - Automatic sequence scaling - Auto Navigator - Auto-FoV - Timeline setup and monitoring - Automatic Voice Commands - Auto Bolus Detection - Inline radial range calculation for MRCP - Inline Subtraction - Inline Registration
1	**Tissue 4D syngo #Tim** Tissue 4D is an application for visualizing and post-processing dynamic contrast-enhanced 3D datasets. This card provides two evaluation options: - Standard curve evaluation - Curve evaluation according to a pharmacokinetic model
1	**Arterial Spin Labeling 3D #T+D** 3D acquisition of non-contrast enhanced brain perfusion with a TGSE sequence for mininal susceptibility and full brain coverage. Higher SNR, optimized contrast uniformity and reduced motion sensitivity. Inline calculation of PWI (perfusion weighted images) for a qualitative assessment of brain perfusion.
1	**Arterial Spin Labeling 2D** ASL is a non contrast enhanced brain perfusion technique. EPI sequence enhanced for PASL (Pulsed Arterial Spin Labeling) with preparation module (inversion pulse, saturation pulses) and selectable prospective motion correction. Perfusion-weighted color maps and relative cerebral blood flow (relCBF) color maps are calculated with Inline technology.
1	**2/4/8-ch Sentinelle BreastCoil #Sk** The 2-/4-/8-channel Sentinelle Breast Coil consists of a positioning frame with exchangeable coils with different numbers of channels as described in detail in the E text. The 2-/4-/8-channel Sentinelle Breast Coil can be used as an 8-channel imaging coil, a 4-channel biopsy coil for lateral biopsy access, as well as a 2-channel biopsy coil for medial biopsy access. This coil provides a large biopsy access. The preamplifiers are integrated into the coil. The coil is iPAT-compatible. A positioning guidance is provided.

Qty	Item Description
1	**Peripheral Angio 36 #Sk** The new Tim 4G coil technology with Dual Density Signal Transfer and SlideConnect Technolgy combines key imaging benefits: excellent image quality, high patient comfort, and unmatched flexibility: - 36 channels - Dual Density Signal Transfer - Ultra light-weight - SlideConnect Technology The 36-channel coil includes 36 integrated pre-amplifiers for excellent signal-to-noise ratio. The single SlideConect Plug allows for fast and easy patient preparation. The Peripheral Angio 36 features: - 36-element design with 36 integrated preamplifiers, distributed over 6 planes with 6 elements each - Operates in an integrated fashion with Body 18 coils and with the Spine 32 . For Whole-Body examinations also with the Head/ Neck 20 - Automatic table feed and active coil switch - Can be utilized head and feet first - Both legs are independently covered with coil elements, maximizing the coil filling factor and the signal-to-noise ratio - No coil tuning - iPAT-compatible - Dual-Density Signal Transfer enables ultra-high density coil designs by integrating key RF components into the local coil - SlideConnect technology for easy coil set up - One cable only for easy handling - Includes special non-ferromagnetic coil cart for safe, user-friendly storage Applications: - High-resolution angiography of both legs incl. Pelvis (by additional use of the Body 18) with highest signal-to-noise ratio - Visualization of the iliac arteries and aorta in combination with Body 18 - Bilateral examinations of long bones of the legs Typically combined with: Head/ Neck 20, Body 18, Spine 32, and all flexible coils such as Flex Large 4 or Flex Small 4
1	**Endorectal Coil Kit 3T** Kit including interface device for connecting the prostate receive coil probe. The interface device connects to the Tim Coil Interface. An adapter between Medrad interface and the Tim Coil Interface is needed and part of the delivery.
1	**Diffusion Tensor Imaging #Tim**
1	**DTI Evaluation #Tim** DTI Evaluation provides advanced post-processing and visualization of Diffusion Tensor Imaging (DTI) data. DTI Evaluation includes the possibility to calculate tensor data from a DTI dataset retrospectively and enables calculation of different diffusion parameter maps. Furthermore it facilitates joint ROI-based evaluation of parameter images and anatomical images, as well as color-coded display and fused 3D visualization in the anatomical context.
1	**DTI Tractography syngo #Tim** syngo DTI Tractography allows the visualization of multiple white matter tracts of the human brain based on diffusion tensor imaging data. DTI Tractography is

Detailed Technical Specifications

Description

Spine Dot Engine:
The Spine Dot Engine provides optimized cervical, thoracic and lumbar spine imaging for patients of all conditions. Spine Dot Engine provides the functionality to simplify your spine workflow by providing tools to reduce examination times, achieve optimal image quality, and assist you during reading.

- User guidance step-by-step
- AutoPosition
- AutoAlign Spine with intervertebral disc detection
- AutoCoverage
- AutoSatPosition
- Initial and interactive snapping
- AutoLabeling of vertebrae
- Automatic curved multiplanar reconstructions of 3D datasets

The Spine Dot Engine includes:

- Tim Planning Suite
- Inline Composing
- *syngo* WARP Susceptibility Artifact Reduction
  syngo WARP integrates different techniques tailored to reduce susceptibility artifacts caused by orthopedic MR-Conditional metal* implants. 2D TSE sequence combining optimized high-bandwidth protocols and View Angle Tilting (VAT) technique, tailored to reduce susceptibility artifacts caused by orthopedic MR-Conditional metal* implants. This helps in evaluation of soft tissue in proximity of the implant. Available protocols include T1- weighted, T2-weighted, proton density and STIR contrast.

LargeJoint Dot Engine:
LargeJoint Dot Engine optimizes image quality of knee, hip and shoulder scans by proposing the most appropriate protocols according to the examination strategy chosen for the specific patient. It ensures reproducible image quality and streamlines large joint examinations to the greatest extent.

Dot Exam Strategies
The workflow can be personalized to the individual patient condition and clinical need. The LargeJoint Dot Engine comes with the following predefined strategies, which the user can select according to patient conditions or change at any time during the workflow, when conditions change:

- Image quality: Achieve highest image quality in a reasonable scan time with 2D and 3D protocols.
- Speed focus: Examine patients in the shortest possible time with protocols being accelerated to the maximal extent.
- Motion artifact reduction: Compensate for the effects of motion, e.g. with motion insensitive *syngo* BLADE protocols.
- Artifacts reduction: Reduce susceptibility artifacts, using *syngo* WARP.

AutoAlign

- Automated, localizer based positioning and alignment of slice groups to the anatomy, relying on anatomical landmarks. Providing fast, easy, and reproducible patient scanning and supporting the reading by consistently delivering high image quality with a standardized slice orientation.

Inline MPRs - Automatic multiplanar reconstruction for 3D datasets

- The Multi Planar Reconstruction (MPR) tool uses the position information from the AutoAlign algorithm and can be easily configured to automatically generate any required 2D images from high resolution 3D acquisitions.

Guidance View

Description

- Step-by-step user guidance is seamlessly integrated.
- Example images and guidance text are displayed for each individual step of the scanning workflow.
- Both images and text are easily configurable by the user

syngo WARP - Susceptibility Artifact Reduction

- *syngo* WARP integrates different techniques tailored to reduce susceptibility artifacts caused by orthopedic MR-Conditional metal* implants. 2D TSE sequence combining optimized high-bandwidth protocols and View Angle Tilting (VAT) technique, tailored to reduce susceptibility artifacts caused by orthopedic MR-Conditional metal* implants. This helps in evaluation of soft tissue in proximity of the implant. Available protocols include T1- weighted, T2-weighted, proton density and STIR contrast.

Advanced WARP:

- Advanced WARP application consists of SEMAC, a technique to reduce gross metal* artifacts (i.e. through-plane artifacts) caused by big orthopedic implants. The main clinical applications are in hip and knee joint replacements. Available protocols include T1-weighted, T2-weighted, proton density and STIR contrast.

Customization

The LargeJoint Dot Engine can be modified by the user to their individual standard of care.

- Add/remove protocol steps
- Change guidance content (images and text)
- Change or add Dot exam strategies
- Add clinical decision points
- Add/remove parameters in the parameter viewing card

- *MR imaging of patients with metallic implants brings specific risks. However, certain implants are approved by the governing regulatory bodies to be MR conditionally safe. For such implants, the previously mentioned warning may not be applicable. Please contact the implant manufacturer for the specific conditional information. The conditions for MR safety are the responsibility of the implant manufacturer, not of Siemens.

The option features:

- Display and storage of full-format images, e.g. of the spine, the central nervous system or the vessel tree (starting from *syngo* MR B13), combined from multiple overlapping stages.
- Dedicated composing algorithms, optimized for the generation of anatomical or angiographic (starting from *syngo* MR B13) full-format images.
- Data sets with different FoV, resolutuion, matrix and slice thickness can be combined (starting from *syngo* MR B13).
- Generation of full-format images from inline MIPs (starting from *syngo* MR B13).
- Original, detail and reconstructed images can be displayed in different layouts.
- Comparison of two reconstructed images for evaluation and diagnosis is thus made possible.
- Filming in different layouts is supported.
- Measurements of basic functions via reconstructed images is then possible.
- Measurements of extended orthopedic functions:
  scoliotic angle, kyphotic angle, vertical distance measurement and differences in width of the intervertebral spaces.

  Prerequisite: SW syngo MR B13.

RESOLVE is a diffusion-weighted, readout-segmented EPI sequence optimized towards high resolution imaging with reduced distortions.
The sequence uses a very short echo-spacing compared to single-shot EPI, substantially reducing susceptibility effects. A 2D-navigator correction is applied to avoid artefacts due to motion-induced phase errors. This combination allows diffusion weighted imaging of the breast, prostate (SEEit sequence for prostate DWI), brain and spine with a high level of detail and spatial precision.

Additionally, an automatic reacquisition of data with large phase errors can be used to ensure that diffusion-weighted images of the brain are not affected by CSF pulsation.

Despite a strong sensitivity for local magnetic field inhomogeneities Susceptibility Weighted Imaging (SWI) as a 3D technology keeps up the signal near large susceptibility leaps due to very thin slices and high resolution in the slice (high image quality e.g. in the area of the forebrain near the frontal sinus).

Description

Moreover, the phase information of the MR signal is integrated in the image display. In order to further increase sensitivity for localized microscopic magnetic field inhomogeneities, large-area magnetic field inhomogeneities (e.g. caused by susceptibility leaps near the sinus) are specifically suppressed in the phase images.
This allows even small amounts of deoxygenated hemoglobin (e.g. in cerebral veins) or from products of hemoglobin decomposition (e.g. from hemorrhages) to be displayed.
Interesting measuring times for the ultra-high-resolution 3D protocols are achieved through parallel imaging with iPAT (GRAPPA).

The Susceptibility Weighted Imaging package includes:

- SWI measuring sequence, iPAT compatible
- optimized measuring protocols for the head
- inline-postprocessing for automatic calculation of relevant images within the scope of image reconstruction:
  - calculation of susceptibility-weighted images
  - venous angiography: MIP of a thin slice block

SWI has been optimized for clinical use to support diagnostics with cerebrovascular diseases (e.g. cerebral insult), venous malformation, brain trauma and tumors.

Prerequisite: Software syngo MR B13

Software option for general regulatory security rules, providing enhanced security features including user management and audit trail functionality. This package supports customers in their achieving compliance with the HIPAA "Privacy" rule.

Included Features:
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

MAGNETOM Harmony, Symphony, Sonata, Concerto, Trio, Allegra systems require Software version syngo MR 2004A!

Power cable to connect the 3 KVA Powerware 9125 small UPS system
(pn PWR9125H3000) to the ACC cabinet of the MAGNETOM Avanto/ Espree/ Tim Trio for backing up the host computer and imager.

Configuration includes connection box.

The standard cable length is 9 m.

An MR-compatible arm rest that supports the patient's arm on the magnet patient table when starting intravenous lines. The board is removed after the IV is inserted.

This product has been tested and verified for compatibility with the following Siemens' products: MAGNETOM Trio, Verio, Espree, Essenza, Avanto, Symphony, Area Skyra and Biograph mMR. Compatibility with other products cannot be assured and may void service contracts and/or system warranties.

Chiller KKT ECO 133 - L
Function:
Supplies dedicated primary chilled water in cases where no chilled water supply is available on site. Air-cooled version, for outdoor installation up to a maximum distance
of 25 m for connection to the IFP, incl. 50 m FOC for control.
The cooling capacity of the chiller is 60 kW, the chilled water temperature is 20°C, the water flow is 130 l/min.
Ambient temperature: -20 to +48°C
Connection rating: 28 kW
Voltage: 3/PE 400 V to 480 V / 50/60 Hz
Fuse rate: 80 A
Power consumption: 66 A
Dimensions: 2000 mm x 1100 mm x 2100 mm (height x width x depth).

Description

Weight: 760 kg
Noise level at a distance of 10 m at outside temperatures of:
21°C 47 dB(A)
32°C 52 dB(A)
48°C 58 dB(A)

IFP (Interface Panel)
Main functions of the IFP:
- Interface function between the KKT chiller and the MR cabinet.
- Water supply for MREF, MBB, CBB and TX box.
Additional devices such as integrated differential pressure control, a pressure gage, and a filter are used in order to guarantee the precise functioning of the cooling circuit, especially for the cold head compressor (MREF).
The connection must be made locally with 2“ lines up to a maximum distance of 25 m.
Dimensions: 800 mm x 1150 mm x 210 mm (height x width x depth).
Weight: 67 kg

Start up and initial set up service performed by the chiller manufacturer or designated service representative. This service does not include the piping and other prerequisite siting, of the waterchiller, which are the responsibility of the customer.
12 months warranty and performed by the chiller manufactuer.

EmpowerMR is a dual syringe MR compatible contrast injection system for the administration of MR contrast agents. EmpowerMR deploys a unique and proprietary hydraulic drive system to displace contrast media to a patient. There are no motors, motor control circuitry or special shielding of electronic components deployed in the MR scanner room. EmpowerMR's injector head can be freely positioned in the MR scanner room with no minimum distance requirements to the magnet, no battery or battery charging system. EmpowerMR's user interface provides for accessible and easy to use controls in both the upright filling position and downward tilted inject position.

EmpowerMR provides flow rates ranging between 0.1 cc/sec to 10.0 cc/sec at delivery pressures up to 300 psi (21 bar). Additional product features include saline KVO, test injection and injector head tilt sensor. EmpowerMR is based upon the same open architecture as the EmpowerCTA platform that includes the IRiS (Injector Reporting & Information System). IRiSMR and IRiSCT provide contrast data management collectively across both MR and CT imaging modalities.

EmpowerMR is warranted by E-Z-EM for a period of one year from date of installation. Installation and applications training included.

This product has been tested and verified for compatibility with Siemens MAGNETOM MR Systems: Verio, Essenza, Espree, Avanto, Symphony, Trio, Skyra and Aera. Compatibility with other products cannot be guaranteed and use w/ any other products may void service contracts and/or system warranties.

Technical data:
The requirement to connect a Medrad eCoil disposable endorectal coil is a system specific SIEMENS MAGNETOM interface.

This product has been tested and verified for compatibility with the following Siemens' products: MAGNETOM Trio a Tim system (software version N4 VB15A and greater), Verio (software version N4 VB15B and greater) and Skyra (MR D11A)**.** Compatibility with other products cannot be assured and may void service contracts and/or system warranties.

Abdomen Dot Engine
Guidance view

- Step-by-step user guidance is seamlessly integrated.
- Example images and guidance text displayed for each step of scanning workflow.
- Both images and text are easily configurable by the user

Patient View

- Easily tailored to the individual patient.

Description

- Several pre-defined, integrated Dot Exam Strategies are included
- Single click update of queue and the complete scan set-up.
- Integrated contrast media protocols (Vibe Dynamic)

Parameter View

- A new view that displays the essential parameters
- Can be opened at any time during an examination

Automatic sequence scaling

- Auto FoV: optimal FoV is proposed, based on the localizer images.
- AutoNavigator: based on automatic breathing pattern detection and scaling of triggered scans.
- Breath-hold adaptations

Dot Exam Strategies
Personalize to the individual patient condition and clinical need.

- Predefined strategies:
  - Standard with breath-hold
  - Standard with PACE triggering
  - Limited patient capabilities using *syngo* BLADE and PACE triggering.

Dot Decisions
Seamlessly integrated into scanning workflow:

- Select the queue and the appropriate protocol or set of protocols are automatically added.
- Abdomen Dot Engine integrates MRCP and Diffusion decision points.

Timeline setup and monitoring
Convenient visual overview of multi-phase breath-hold examinations and CM enhancement curve visualization.

Auto Voice Commands

- Played automatically
- Facilitate timing of scanning, breathing and contrast media.
- The user controls breath-hold or pauses are actually played
- Ability to add pauses between automatic breath-holds.

Auto Bolus Detection

- Automatically initiates the dynamic upper abdomen examination based on bolus detection.
- The user can override this function.

Inline radial range calculation for MRCP

- MRCP is measured
- Inline Radial Ranges are automatically generated.

Inline Subtraction
Automatically subtracts the native (non-contrast) measurement from the arterial, portal-venous and late phase.

Inline Registration
The system automatically performs a registration / alignment of the anatomy for the different dynamic phases, of interest when examining nodular enhancing pathologies.

Customization
Existing Dot Engines can be modified by the user to their individual standard of care.

- Add / remove protocol steps
- Change guidance content (images and text)
- Change or add Dot Exam Strategies and Decision Points
- Modify the Parameter View

Description

3D acquisition of non-contrast enhanced brain perfusion with a TGSE sequence for mininal susceptibility and full brain coverage. Higher SNR, optimized contrast uniformity and reduced motion sensitivity. Inline calculation of PWI (perfusion weighted images) for a qualitative assessment of brain perfusion.

Single Shot EPI sequence for measuring diffusion-weighted data sets with diffusion weighting in more than 60 directions. Based on these data sets, the diffusion tensor and parameter cards derived from it are calculated automatically and in real-time (fractional anisotropy). The package supports both the clinical applications (e.g. diseases of the white matter) and advanced research applications.

The Single Shot EPI sequence in the “Diffusion Tensor Imaging“ package has been optimized for the measurement of data sets allowing the evaluation of diffusion anisotropy in the brain. Efficient diffusion direction patterns are pre-defined to allow for optimal diffusion direction resolution. Patterns with more than 60 directions can be selected.
Inline technology enables automatic and immediate calculation of the diffusion tensor, including the “fractional anisotropy (FA) of the image derived from it.
In order to further support clinical application, the “inline diffusion” functionality (mandatory item) has been integrated. Based on the DTI measurement, trace-weighted and ADC images can also be calculated automatically and immediately.

Details:
Measurements with more than 60 different directions
Measurements with up to 16 different b-values
Inline calculation of tensor, FA image, ADC image and trace-weighted image
Support of parallel imaging (iPAT)
Clinical protocols with full coverage of the brain, incl. inline calculation of tensor, FA, ADC and trace-weighted images in 4 minutes.

Diffusion Tensor Imaging allows for a complete description of the diffusion properties of the brain within the scope of the tensor diffusion model, both for anisotropic and isotropic diffusion. The package is optimized for clinical application regarding diseases of the white matter (e.g. Encephalopathia Diseminata, brain maturation disorders, displacement of nerve fiber tracts through masses...). In connection with Tim technology, the package additionally offers the scientific user full flexibility of measuring highly complex DTI data sets.

Prerequisite: Software syngo MR 2006A

Based on the tensor, in addition to the already inline-calculated parameter maps, further maps characterizing the anisotropy of diffusion properties can be calculated and stored. The display options include 2D and 3D tensor graphics, color-coded images and overlay images on the anatomical images.
In fusion mode the color-coded diffusion images can be overlaid on an anatomical 3D image data set acquired in the same examination. The overlaid image volume can be evaluated, displayed and stored in cut planes with any double oblique angulation.
If the option “*syngo* 3D Offline fMRI” or “Advanced Functional Neuro” is available, the results of an fMRI experiment from the same examination can also be displayed fused with DTI and anatomy.
Clinical application is supported by a dedicated DTI evaluation mode. Multiple diffusion parameter maps (e.g. Fractional Anisotropy, ADC, b=0) and an anatomical image are displayed next to each other in the same slice position for comparison. The images can be evaluated together based on ROI and the results can be documented in a table.

The following parameter maps can be calculated and displayed:
- Measures of isotropic diffusion:
  ADC, trace-weighted, exponential ADC
- Eigen vectors of the diffusion tensor:
  E1, E2, E3
- Measures of anisotropic diffusion:
  Fractional Anisotropy (FA), Relative Anisotropy (RA),
  Volume Ratio (VR), E1-E3, E1-E2, E2-E3
- Shape-descriptive measures of the diffusion tensor:
  Linear, planar, spherical

Visualization options include:
- 2D/3D grayscale and color display
- 2D/3D display with color coding of one preferred diffusion direction, e.g. Fractional Anisotropy image with

Description

color coding of the direction of the first Eigen vector of the diffusion tensor.
- Display of tensor as an overlaid graphic on parameter maps or anatomical images as an ellipsoid or cuboid (colored).
- Overlay of parameter maps on anatomical images (if the "*syngo* 3D Offline fMRI" option or the "Advanced Functional Neuro" option is available: also simultaneous overlay of fMRI results)

Documentation
- Storage of parameter maps
- Storage of all views
- Storage of the result table of the common ROI-based evaluation of parameter maps
- Storage of multi-planar, double oblique reconstructed series from overlaid 3D visualizations (anatomy + diffusion parameters)

The DTI Evaluation package with comparative side by side mode is optimized for clinical application to support diagnostics of white matter diseases (e.g. multiple sclerosis, brain maturation disorders...).
In addition, the package offers the scientific user full flexibility of 2- and 3-dimensional visualization of the diffusion tensor with measures of isotropic and anisotropic diffusion, Eigen vectors of the diffusion tensor and shape-descriptive measures of the diffusion tensor.

Prerequisite: Sofware syngo MR B13