DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF HEALTH SERVICE REGULATION

ROY COOPER
GOVERNOR

MANDY COHEN, MD, MPH
SECRETARY

MARK PAYNE
DIRECTOR

June 2, 2017

Jeffrey Shovelin
PO Box 6028
Greenville, North Carolina 27835-6028

Exempt from Review – Replacement Equipment

Record #:	**2272**
Facility Name:	Vidant Medical Center
FID #:	933410
Business Name:	Pitt County Memorial Hospital, Inc.
Business #:	1443
Project Description:	Replace MRI Scanner
County:	Pitt

Dear Mr. Shovelin:

The Healthcare Planning and Certificate of Need Section, Division of Health Service Regulation (Agency), determined that based on your letters of May 31, 2017 and April 10, 2017, the above referenced proposal is exempt from certificate of need review in accordance with N.C. Gen. Stat. §131E-184(f). Therefore, you may proceed to acquire without a certificate of need the GE Signa Artist 1.5 MRI scanner to replace the existing GE Signa Excite HD 1.5T MRI scanner. This determination is based on your representations that the existing unit will be sold or otherwise disposed of and will not be used again in the State without first obtaining a certificate of need if one is required.

Moreover, you need to contact the Agency's Construction and Acute and Home Care Licensure and Certification Sections to determine if they have any requirements for development of the proposed project.

It should be noted that the Agency's position is based solely on the facts represented by you and that any change in facts as represented would require further consideration by this office and a separate determination. If you have any questions concerning this matter, please feel free to contact this office.

Sincerely,

Jane Rhoe-Jones
Project Analyst

Martha J. Frisone
Chief, Healthcare Planning and
Certificate of Need Section

cc: Construction Section, DHSR
Acute and Home Care Licensure and Certification Section, DHSR
Paige Bennett, Assistant Chief, Healthcare Planning, DHSR

VIDANT HEALTH

May 31, 2017

Ms. Jane Rhoe-Jones
Certificate of Need Section
Division of Health Service Regulation
NC Department of Health and Human Services
2704 Mail Service Center
Raleigh, NC 27699-2704

RE: Vidant Medical Center's MRI Replacement

Dear Ms. Rhoe-Jones:

Please accept this letter as documentation that I, Brian Floyd, President of Vidant Medical Center (VMC), do hereby certify, as it relates to the proposed project, that:

1. Financial control of the entire licensed health service facility is exercised at the site of the proposed renovations and/or construction, and

2. Administrative control of the entire licensed health service facility is exercised at the site of the proposed renovations and/or construction.

If you require additional information or clarification, please contact Jeff Shovelin, Director of Corporate Planning for Vidant Health at (252)-847-3631. Thank you for your time and attention to this important project.

Sincerely,

Brian Floyd, MBA, RN
President
Vidant Medical Center

DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF HEALTH SERVICE REGULATION

ROY COOPER
GOVERNOR

MANDY COHEN, MD, MPH
SECRETARY

MARK PAYNE
DIRECTOR

19 May 2017

Jeffrey Shovelin
PO Box 6028
Greenville, North Carolina 27835-6028

Information Request for Exemption Pursuant to G.S. 131E-184(f)

Facility:	Vidant Medical Center
Project Description:	Replace MRI Scanner
County:	Pitt
FID #:	933410

Dear Mr. Shovelin:

The Healthcare Planning and Certificate of Need Section, Division of Health Service Regulation (Agency) received your letter 10 April 2017 regarding the above reference proposal. However, additional information is needed to determine if the project is exempt from review pursuant to N.C. Gen. Stat. §131E-184(f).

Provide a written response to the following:

1. Documentation that financial control of the entire licensed health service facility is exercised at the site where the equipment proposed to be replaced is currently located.
2. Documentation that administrative control of the entire licensed health service facility is exercised at the site where the equipment proposed to be replaced is currently located.

If you have any questions concerning this request, please do not hesitate to call this office.

Sincerely,

Jane Rhoe-Jones

Jane Rhoe-Jones
Project Analyst, Certificate of Need

rhoe-jones, jane e

From: rhoe-jones, jane e
Sent: Friday, May 19, 2017 12:44 PM
To: Shovelin, Jeffrey
Subject: Request Information Exemption 184(f) VMC MRI
Attachments: Request Information Exemption 184(f) VMC MRI.docx

Jeff,
Please see the attached for the MRI replacement, per your 10 April 2017 letter. Your reply to this email is acceptable.

Thanks,
Jane

Jane Rhoe-Jones, MSPH
Project Analyst
Health Service Regulation, Healthcare Planning & Certificate of Need Section
North Carolina Department of Health and Human Services

919-855-3873 office
jane.rhoe-jones@dhhs.nc.gov

809 Ruggles Drive
2704 Mail Service Center
Raleigh, NC 27699-2701

Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

Twitter YouTube

Unauthorized disclosure of juvenile, health, legally privileged, or otherwise confidential information, including confidential information relating to an ongoing State procurement effort, is prohibited by law. If you have received this e-mail in error, please notify the sender immediately and delete all records of this e-mail.

VIDANT HEALTH™

April 10, 2017

Ms. Jane Rhoe-Jones
Certificate of Need Section
Division of Health Service Regulation
NC Department of Health and Human Services
2704 Mail Service Center
Raleigh, NC 27699-2704

RE: Request for "No Review" for a MRI Scanner Replacement at Pitt County Memorial Hospital, Incorporated d/b/a Vidant Medical Center

Dear Ms. Rhoe-Jones:

Pitt County Memorial Hospital, Incorporated d/b/a Vidant Medical Center (VMC) plans to replace an existing GE Signa Excite HD 1.5T MRI scanner with a new GE Signa Artist 1.5T MRI scanner. The reason for the replacement is due to the age and subsequent performance and technology limitations of the existing equipment (originally purchased in 2000). The total capital costs for the proposed replacement is estimated to be $3,022,560 (see Appendix D). These costs include all expenses associated with the equipment replacement. The project will be funded through accumulated reserves and is anticipated to be complete by January 2017.

Even though the project exceeds $2,000,000, VMC believes that the proposed equipment replacement is not subject to review under North Carolina's Certificate of Need (CON) laws. VMC's proposed project meets the requirements found in G.S. 131E-184(f). This statute states:

> (f) The Department shall exempt from certificate of need review the purchase of any replacement equipment that exceeds the two million dollar ($2,000,000) threshold set forth in G.S. 131E-176(22) [sic, should be (22a)] if all of the following conditions are met:
>
> (1) The equipment being replaced is located on the main campus.
>
> (2) The Department has previously issued a certificate of need for the equipment being replaced. This subdivision does not apply if a certificate of need was not required at the time the equipment being replaced was initially purchased by the licensed health service facility.
>
> (3) The licensed health service facility proposing to purchase the replacement equipment shall provide prior written notice to the Department, along with supporting documentation to demonstrate that it meets the exemption criteria of this subsection.

Specifically:

a) The proposed project meets the definition of replacement equipment found in G.S. 131E-176(22a) in that the new equipment is being purchased for the sole purpose of replacing comparable medical equipment that is currently in use and otherwise disposed of when replaced. Reference Appendix F for the Responses to Replacement Equipment Key Questions, Appendix B for the equipment comparison table, and Appendix E for the existing equipment disposal letter from the vendor.

b) The equipment is being replaced in the exact location where the existing equipment currently resides and is located on VMC's main campus. Reference Appendix C for Site Plans and Floor Plans associated with the proposed project.

c) VMC originally obtained ownership of the existing equipment through a certificate of need in December 1998 through approved project ID Q-Q-5898-98 (see Appendix G). Note: VMC decided to purchase a less expensive GE Signa Excite 1.5T MRI scanner rather than the Siemens SP 4000 1.5T MRI scanner original proposed in the CON application.

d) VMC is a licensed health service facility (see Appendix G for VMC's license) and by this letter, is providing prior written notice to the Department, along with supporting documentation to demonstrate that it meets the exemption criteria of this subsection.

VMC's proposal meets the requirements identified above and is therefore exempt from review. Therefore, VMC requests approval of a no review status for the proposed project.

If you require additional information or clarification, please contact me at (252)-847-3631.

Sincerely,

Jeffrey Shovelin
Director of Corporate Planning
Vidant Health
PO Box 6028, Greenville, NC 27835-6028
(252) 847-3631
jshoveli@vidanthealth.com

Appendix A

Vendor Quote

GE Healthcare

Date: 02-24-2017
Quote #: PR16-C14252
Version #: 2

Vidant Medical Center
2100 Stantonsburg Rd
Greenville NC 27834-2818

Customer Number : 1-23I1HJ
Quotation Expiration Date: 05-25-2017

The terms of the Master Purchasing Agreement, Strategic Alliance Agreement or GPO Agreement referenced below as the Governing Agreement shall govern this Quotation. No additional or different terms shall apply unless agreed to in writing by authorized representatives of both parties.

Governing Agreement:	Novation - Vizient Supply LLC
Terms of Delivery:	FOB Destination
Billing Terms:	80% delivery / 20% Installation
Payment Terms:	NET 30
Total Quote Net Selling Price:	$2,522,650.16

INDICATE FORM OF PAYMENT:

If "GE HFS Loan" or "GE HFS Lease" is NOT selected at the time of signature, then you may NOT elect to seek financing with GE Healthcare Financial Services (GE HFS) to fund this arrangement after shipment.

____Cash/Third Party Loan

____GE HFS Lease

____GE HFS Loan

____Third Party Lease (please identify financing company)

By signing below, each party certifies that it has not made any handwritten modifications. Manual changes or mark-ups on this Agreement (except signatures in the signature blocks and an indication in the form of payment section below) will be void.

Each party has caused this agreement to be executed by its duly authorized representative as of the date set forth below.

CUSTOMER

_____ _____
Authorized Customer Signature Date

_____ _____
Print Name Print Title

_____
Purchase Order Number (if applicable)

GE HEALTHCARE
Nicholas Bengel 03-02-2017
Signature Date

Imaging Account Manager

Email: nicholas.bengel@ge.com
Office: +1 414 238 7008

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General Electric Company, GE Healthcare Division

GE Healthcare

Date: 02-24-2017
Quote #: PR16-C14252
Version #: 2

Total Quote Selling Price	**$2,522,650.16**
Trade-In and Other Credits	$0.00
Total Quote Net Selling Price	**$2,522,650.16**

To Accept this Quotation

Please sign and return this Quotation together with your Purchase Order To:
Nicholas Bengel
Office: +1 414 238 7008
Email: nicholas.bengel@ge.com

Payment Instructions

Please **Remit** Payment for invoices associated with this quotation to:
GE Healthcare
P.O. Box 96483
Chicago, IL 60693

To Accept This Quotation

- Please sign the quote and any included attachments (where requested).
- If requested, please indicate, your form of payment.
- If you include the purchase order, please make sure it references the following information
  - The correct Quote number and version number above
  - The correct Remit To information as indicated in **"Payment Instructions"** above
  - The correct SHIP TO site name and address
  - The correct BILL TO site name and address
  - The correct Total Quote Net Selling Price as indicated above

"Upon submission of a purchase order in response to this quotation, GE Healthcare requests the following to evidence agreement to contract terms.
Signature page on quote filled out with signature and P.O. number.
**********OR**********
Verbiage on the purchase order must state one of the following: (i) Per the terms of Quotation #_____; (ii) Per the terms of GPO#_____; (iii) Per the terms of MPA #_____; or (iv) Per the terms of SAA #_____. Include the applicable quote/agreement number with the reference on the purchase order.
In addition, source of funds (choice of: Cash/Third Party Loan or GE HFS Lease or GE HFS Loan or Third Party Lease through _____), must be indicated, which may be done on the quote signature page (for signed quotes), on the purchase order (where quotes are not signed) or via a separate written source of funds statement (if provided by GE Healthcare)."

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GE Healthcare

Date: 02-24-2017
Quote #: PR16-C14252
Version #: 2

02-24-2017

GPO Agreement Reference Information

Customer:	
Contract Number:	PLEASE SEE NOVATION CONTRACT # BELOW
Start Date:	
End Date:	12/31/2021
Billing Terms:	80% delivery / 20% Installation
Payment Terms:	NET 30
Shipping Terms:	FOB Destination

NOTICE REGARDING MAGNETIC RESONANCE ("MR") PRODUCTS. This notice applies only to the following GE Healthcare products: MR: Discovery MR750, Discovery MR750w, Discovery MR450 and Optima MR450w. GE Healthcare has reclassified several advanced software tools and associated documentation to a GE Healthcare Technical Service Technology package that GE Healthcare feels will bring greater value and interest to our customers. GE Healthcare will continue to provide trained Customer employees with access to the GE Healthcare Technical Service Technology package under a separate agreement. GE Healthcare will continue to provide customers and their third party service providers with access to software tools and associated documentation in order to perform basic service on the CT, MR and NM products listed above upon a request for registration for such access. This will allow GE Healthcare to react faster to the future service needs of GE Healthcare customers. If you have any questions, you can contact your sales Service Specialist.

This product offering is made per the terms and conditions of Novation/GE Healthcare GPO Agreement # XR0391 (MR).

For access to the applicable Novation Agreement and Contract Summary, please login to the Novation Marketplace website. If you require assistance or are experiencing issues please contact one of the following for support:

Novation Customer Service (888) 7-NOVATE NOVCustomerService@novationco.com

Web Site Technical Support (800) 327-8116 NovationTechSupport@novationco.com

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Item No.	Qty	Catalog No.	Description
			SIGNA Artist 1.5T - 96ch 1.5T
	1		**SIGNA Artist 1.5T**
1	1	S7526GR	SIGNA™ Artist 1.5T 96-Channel MR System

SIGNA™ Artist 1.5T from GE Healthcare, fueled by our new SIGNA™Works productivity platform, is a harmonious design of form and function, crafted to energize your productivity, enhance security, improve diagnostics and boost your bottom line.

The Artist configuration includes the system electronics, operating software, imaging software, post-processing software and RF coil suite:

- RF-Receive Technology
- RF Coil Suite
- eXtreme Gradient Technology
- ART Quiet Technology
- Computing Platform and DICOM
- eXpress Detachable Table
- SIGNA™Flow and READYView Workflow
- SIGNA™Works Applications Toolkit

Total Digital Imaging: SIGNA™ Artist features the 96-channel Total Digital Imaging RF architecture. This technology delivers images with enhanced clarity and high SNR performance. The TDI RF architecture includes:

- Direct Digital Interface (DDI) employs an independent analog-to-digital converter to digitize inputs from each of the 96 RF channels. Thus, very element translates to a digitized signal to deliver high quality images.
- Digital Micro Switching (DMS) technology represents a revolutionary advance in RF coil design by replacing analog blocking circuits with advanced Micro Electro-Mechanical System (MEMS) based blocking circuits enabling a coil design that supports ultrafast switching times for further expansion of Zero-TE imaging.
- SIGNA™ Artist is prepared for Digital Surround Technology (DST). DST delivers the ability to simultaneously acquire signal from the integrated body coil and the surface coil by combining the independently digitized signal from each. The superior SNR and sensitivity of the high-density surface coils are combined with the superior homogeneity and deeper signal penetration of the integrated RF Body Coil to deliver enhance image quality.

RF Coil Suite: The Artist coil suite is designed to enhance patient comfort and image

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Item No.	Qty	Catalog No.	Description

quality while simplifying workflow by ensuring that the geometry of the surface coil matches the geometry of the patient. The suite includes:

- (1) Integrated T/R Body Coil
- (1) T/R Head Coil
- (1) Posterior Array
- (1) Head-Neck Unit
- (1) Anterior Array

The Posterior Array is designed to provide optimal element geometry for each targeted anatomy by using different element geometries for the cervical-to-thoracic spine transition, thoracic and lumbar spine, and the body. The PA coil is designed to be used in conjunction with the HNU, 1 or 2 AA coils combined (2nd is sold separately), Small AA (sold separately), and the PV Array (sold separately). The PA coil is embedded in the Express detachable table and is invisible to additional surface coils when they are placed directly on top of the surface.

- Elements: 40
- Length: 100 cm; Width: 40cm
- S/I coverage: 100cm head-first or feet-first
- Parallel imaging in all three scan planes
- Head-first or feet-first positioning

The Head and Neck Unit comprises the head base-plate and three anatomically optimized anterior arrays: the anterior Neuro-vascular array, the anterior cervical spine array, the anterior open-face array. The HNU may be positioned at either end of the Express table to support head-first or feet-first imaging and may remain in place for all body, vascular, spine, and most MSK exams. The HNU base plate supports the patient's head, and the Comfort Tilt variable-degree ramp can be positioned under the HNU base plate to elevate the coil to match the patient's head and neck position.

- Elements: up to 28 combined with PA and AA
- Length: 49.5 cm; Width: 38.8 cm
- Height with NV Array: 35.4 cm
- Height with Cervical Array: 32.6 cm
- Height with Open Array: 25.9 cm
- S/I coverage: up to 50 cm with PA and AA
- Parallel imaging in all three scan planes
- Head-first or feet-first positioning

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The Anterior Array is designed for large field of view imaging for chest, abdomen, pelvis, and cardiac imaging. The AA coil is lightweight, thin and flexible, and pre-formed to conform to the patient's size and shape. With 54 cm of S/I coverage, the AA permits upper abdomen and pelvis imaging without repositioning the coil. In addition, two of AA's can be combined to perform extended coverage for Oncologic imaging.

- Elements: up to 36 combined with PA
- Length: 55.6 cm; Width: 67.4 cm
- S/I coverage: 54 cm
- R/L coverage: up to the full 50 cm FOV
- Parallel imaging in all three scan planes
- Head-first or feet-first positioning

eXtreme Gradient Technology (XRM): SIGNA™ Artist delivers high temporal resolution through 3-axis gradient amplifier power supply and efficient gradient coil design as well as high spatial integrity through excellent magnet homogeneity and gradient linearity over a large FOV. The XRM gradients are non-resonant and actively shielded to minimize eddy currents, and use an innovative digital control architecture design to deliver high fidelity, accuracy and reproducibility.

- Peak amplitude per axis: 44 mT/m
- Up to 200 T/m/s instantaneous peak slew rate per axis
- Peak current & voltage: 830 Amps, 1650 Volts
- Digital PI feedback loop control
- Maximum FOV: 50cm
- Duty Cycle: 100%

Quiet Technology (ART): SIGNA™ Artist features Acoustic Reduction Technology (ART) designed to deliver an enhanced patient experience by significantly addressing both vibrational noise and airborne sound through 5 levels of technology.

- Gradient & RF coil isolation – isolates the resonance module from the magnet
- Vibro-acoustic isolation – isolated the magnet from the building
- Mass-damped acoustic barriers – further mute sound
- Gradient waveform optimization – user selectable

Computing Platform: SIGNA™ Artist utilizes a parallel, multi-processor design to enable simultaneous scanning, reconstruction, filming, post-processing, archiving, and

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networking.

Host PC Platform – Intel Xeon E501620 3.5Ghz (4 core)
- Memory: 32 GB
- Hard Disk Storage: 2 x 512 GB SSD
- Media Drives: CD/DVD
- Operating System: Scientific Linux

Reconstruction Engine – Intel Xeon E5-2680 (2 x12 core)
- Memory: 96 GB
- Hard Disk Storage: 2 x 400 GB SSD
- 2D FFT/second (256 x 256 Full FOV): 62,000 2DFFT/second
- Operating System: Scientific Linux

The Host PC includes a keyboard assembly with an integrated intercom speaker, microphone, volume controls, and emergency stop switch. Start scan, pause scan, stop scan and table advanced to center hot keys are also included.

DICOM: The SIGNA™ Artist generates MR Image, Secondary Capture, Structured Report, and Gray Scale Softcopy Presentation State DICOM objects. The DICOM networking supports both send and query retrieve as well as send with storage commit to integrate with PACS archive. Please refer to the DICOM Compliance Statement for SIGNA™ Artist for further details.

SIGNA™Works clinical applications and SIGNA™Flow are the latest software platform from GE with core pulse sequences, specialized clinical applications, workflow enhancements and visualization tools designed to enable high productivity with exceptional quality and outcomes with SIGNA™ Artist.

SIGNA™Flow is designed to standardize and accelerate workflow from patient set-up to scanning to review. Workflow can begin before the patient enters the magnet room and exams can be completed within a few mouse clicks – delivering quality and consistency for all patients and from all technologists. At the same time, SIGNA™Flow maintains the flexibility needed to rapidly adapt and optimize exams for patient specific situations.
- Express Detachable Table
- IntelliTouch Land-marking
- In-Room Operator Console

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General Electric Company, GE Healthcare Division

Item No.	Qty	Catalog No.	Description

- Protocol Libraries & Management Tools
- Workflow Manager & Auto Functions
- Inline Processing, Networking & Viewing
- ReadyView post processing (on console)

Express Docking Table: The Express table is a mobile patient transport device that includes the Posterior RF Array and touch sensitive IntelliTouch land-marking. The fully detachable table is easily docked and undocked by a single operator and simple to move in and out of the exam room for patient transport and preparation. The Express table and embedded PA coil are designed to accommodate head-first or feet-first imaging for all supported exams.

- Coil Connection Ports: 3; one at each end; one for embedded PA
- Maximum patient weight for scanning: 500 lbs
- Maximum patient weight mobile: 500 lbs
- Maximum patient weight for lift: 500 lbs
- 205 cm symmetrical scan range
- Automated vertical and longitudinal power drive
- Fast longitudinal speed: 30 cm/second
- Slow longitudinal speed: 0.5 cm/second
- Integrated arm boards & non-ferrous IV pole
- IntelliTouch & laser land-marking
- Laser alignment land-marking

SIGNA™Flow Modality Worklist delivers an automated method to obtain patient, exam and protocol information from a DICOM work-list server. For sites with full DICOM connectivity, once a patient has been selected from the Modality Worklist, a new session can be started and the In-Room Operator Console will automatically highlight the relevant exam details. The Modality Worklist enables complete control of the MR protocol prescription, but also reduces work by allowing the MR protocol to be selected and linked to the patient record in advance of the patient's arrival.

SIGNA™Flow Protocol Tools enable exam automation while also giving the user complete control of protocols for prescription, saving, searching, and sharing. Protocols are organized into two libraries: GE Optimized (preloaded protocols) and Site Authored (customized and saved). Protocols can be saved based on patient demographics, anatomy, scan type, or identification number for rapid search and selection, and commonly used protocols can be flagged as favorites for quick

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selection from the Modality Work-list. ProtoCopy enables a complete exam protocol to be shared with the click of a mouse and provides a process for managing protocols across multiple systems as well as saving protocols for back-up.

GE protocols provided with the system include Protocol Notes designed to guide the user through the procedure. For special applications, Protocol Notes also include video guides with step-by-step video-based demonstration and instruction. Protocol Notes can be edited by the user to reflect protocol modifications to aid communication among users.

SIGNA™Flow Workflow Manager and Linking: Upon selection a protocol automatically loads into the Workflow Manager for implementation. The Workflow Manager controls location prescription, acquisition, processing, visualization and networking, and can fully automate these steps, if requested by the user. Once the target anatomy has been prescribed, the Linking feature can be used to translate appropriate parameters to all subsequent series that have been linked, eliminating the need for further action by the user.

Auto Functions when selected can automatically initiate the localizer, coil selection, series-to-series scanning, multi-station scanning, prescription of scan plans for brain exams, as well as delivered instructions to the patient. Pause and Resume allows the user to pause a scan in progress (even in automated mode), to respond to a patient need, and then resume mid-scan (without starting the scan over) helping to address rescans.

Auto Navigators enable free-breathing (respiratory compensated) body imaging for patients unable to breath-hold. The diaphragm tracker pulse automatically places and updates to streamline workflow and eliminate the set-up time associated with respiratory bellows. Auto Navigators can be use with a broad range of imaging techniques including dynamic contrast enhanced T1-weighted imaging.

SIGNA™Flow Inline Processing automatically completes post-processing steps for the user after the images have been reconstructed and saved into the database. For certain tasks, such as vascular segmentation, the user must accept the results, or complete additional steps prior to saving the images to the database. These automated processing steps can be saved to the (scan) protocol to ensure consistent output and workflow:

- Diffusion weighted series: automatic compute and save
- Diffusion tensor series: automatic compute and save
- eDWI: automatic compute and save

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- Image filtering: automatic compute and save
- Maximum/Minimum Intensity Projection: automatic compute and save
- Pasting: automatic compute and save
- Reformat to orthogonal plane: automatic compute and save
- T2 map for cartilage: automatic compute and save
- 3D Volume Viewer: automatic load
- Image Fusion: automatic load
- Interactive Vascular Imaging: automatic load
- FiberTrak: automatic load
- Spectroscopy: automatic load

SIGNA™Flow Advanced Visualization: READYView is an advanced visualization tool designed to simplify the quantitative analyses of multiple data sets. READYView automatically selects the most relevant post-processing protocol for the user and provides guided workflow and general assistance for the processing algorithms. In addition, the user can customize workflows with adjustable layouts, personalized parameter settings, and custom review steps. Key capabilities of READYView include the ability to analyze, export and save:

- Time series
- Diffusion weighted series
- Diffusion tensor series
- Variable echo series
- Blood oxygen level dependent series (functional data)
- Spectroscopy data (single voxel and 2D or 3D CSI)
- Elastography series

SIGNA™Works applications tools are designed to complement SIGNA™Flow to standardize and accelerate workflow from patient set-up to scanning to review. The clinical imaging tools are organized to address six clinical areas: NeuroWorks, OrthoWorks, BodyWorks, OncoWorks, CVWorks and PaedWorks.

NeuroWorks delivers applications and imaging options optimized for the challenges of Neuro imaging. Please refer to the product data sheet for SIGNA™ Artist for complete details.

- ReadyBrain automated brain exam prescription
- PROPELLER MB motion robust radial FSE now with T1 and Fat Suppression (STIR and ASPIR)

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- 3D Cube FSE-based imaging including Dual Inversion Recovery
- 3D COSMIC modified steady state imaging
- 3D BRAVO IR prepared fast SPGR imaging
- 3D FIESTA and 3D FIESTA-C fast steady state imaging
- eDWI enhanced diffusion with Multi-B value and SmartNEX
- PROBE PRESS single voxel spectroscopy
- BrainStat AIF parametric maps
- READYview and BrainView post-processing

OrthoWorks delivers applications and imaging options optimized for the challenges of MSK and Spine imaging. Please refer to the product data sheet for SIGNA™ Artist for complete details.

- MARS High Bandwidth distortion reduction for FSE
- PROPELLER MB motion robust radial FSE now with T1 and Fat Suppression (STIR and ASPIR)
- 3D Cube FSE-based imaging
- 3D COSMIC modified steady state imaging
- 2D/3D MERGE T2* multi-echo fast gradient echo imaging
- READYView post-processing

BodyWorks delivers applications and imaging options optimized for the challenges of Body imaging. Please refer to the product data sheet for SIGNA™ Artist for complete details.

- Body Navigators pencil-beam diaphragm tracker
- PROPELLER MB motion robust radial FSE now with T1 and Fat Suppression (STIR and ASPIR)
- 3D Cube FSE-based imaging
- eDWI enhanced diffusion with Multi-B value and SmartNEX
- 3D LAVA and TurboLAVA with Turbo ARC and SPECIAL
- 2D Fat Sat FIESTA fast steady state imaging
- Enhanced SSFSE Snapshot imaging
- StarMap T2* iron assessment
- Multiphase DynaPlan
- SmartPrep automated bolus detection
- Fluoro Trigger real-time bolus monitoring

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- READYView and BodyView post-processing

OncoWorks delivers applications and imaging options optimized for the challenges of Oncology imaging. Please refer to the product data sheet for SIGNA™ Artist for complete details.

- Body Navigators pencil-beam diaphragm tracker
- PROPELLER MB motion robust radial FSE now with T1 and Fat Suppression (STIR and ASPIR)
- 3D Cube FSE-based imaging
- eDWI enhanced diffusion with Multi-B value and SmartNEX
- 3D LAVA and TurboLAVA with Turbo ARC and SPECIAL
- Multiphase DynaPlan
- SmartPrep automated bolus detection
- Fluoro Trigger real-time bolus monitoring
- READYView, BrainView and BodyView post-processing

CVWorks delivers applications and imaging options optimized for the challenges of Vascular and Cardiac imaging. Please refer to the product data sheet for SIGNA™ Artist for complete details.

- Body Navigators pencil-beam diaphragm tracker
- 2D/3D Time-Of-Flight & 2D Gated Time-of-Flight
- 2D/3D Phase Contrast & Phase Contrast Cine
- SmartPrep automated bolus detection
- Fluoro Trigger real-time bolus monitoring
- 3D QuickStep automated multi-station imaging
- 2D FIESTA Cine steady-state, gated multi-phase imaging
- 3D FS FIESTA steady-state imaging with Fat Sat
- 2D/3D IR Prep gated fast gradient echo imaging
- Black Blood SSFSE
- 2D/PS MDE phase sensitive tissue characterization
- MDE Plus tissue characterization with optimized Fat Sat
- CINE IR fast cine gradient echo with IR-prep pulse
- StarMap T2 iron assessment
- READYView post-processing

PaedWorks delivers applications and imaging options optimized for the challenges of

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			Vascular and Cardiac imaging. Please refer to the product data sheet for SIGNA™ Artist for complete details. • PROPELLER MB motion robust radial FSE now with T1 and Fat Suppression (STIR and ASPIR) • 3D Cube FSE-based imaging including Dual Inversion Recovery • 3D COSMIC modified steady state imaging • 3D BRAVO IR prepared fast SPGR imaging • 3D FIESTA and 3D FIESTA-C fast steady state imaging • eDWI enhanced diffusion with Multi-B value and SmartNEX • PROBE PRESS single voxel spectroscopy • Body Navigators pencil-beam diaphragm tracker • 3D LAVA and TurboLAVA with Turbo ARC and SPECIAL • Black Blood SSFSE • StarMap T2 iron assessment • BrainStat AIF parametric maps • READYview and BrainView post-processing
2	1	M7006HD	SIGNA Artist 1.5T Magnet Design To improve the patient experience and provide high image quality, no other component of an MRI system has greater impact than the magnet. The Artist system features a short, wide bore magnet that delivers a large field of view. The magnet geometry has been optimized to reduce patient anxiety by providing more space in the bore and more exams with the patient's head outside of the magnet. The 50cm field of view provides uniform image quality and can reduce exam times since fewer acquisitions may be necessary to cover large areas of anatomy. Complemented by GE's active shielding technology, the Artist has very flexible installation specifications to provide easy siting. And with zero-boil-off magnet technology, helium refills are effectively eliminated, thus reducing operating costs and maximizing uptime. Magnet: • Manufactured by GE Healthcare. • Operating field strength 1.5T (63.86 MHz). • Active magnet shielding. • Zero boil-off Cryogens. • Magnet length 145cm. • Patient Aperture 76 cm.

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			• Patient Bore Diameter 70cm. • Patient Bore Length 105cm. • Maximum Field of View 50 cm x 50 cm x 50 cm. Magnet Homogeneity: Typical ppm and Guaranteed ppm shown. • 10cm DSV 0.007 and 0.02. • 20cm DSV 0.035 and 0.06. • 30cm DSV 0.11 and 0.18. • 40cm DSV 0.5 and 0.7. • 45cm DSV 1.2 and 1.6. • 50x50x45cm 2.3 and 3.6. • 50cm DSV 3.3. DSV = Diameter Spherical Volume. Homogeneity for an elliptical volume of 50cm (x,y) by 45cm (z) dimension volume is shown for reference. Fringe field (axial x radial): • 5 Gauss = 4.0 m x 2.5 m. • 1 Gauss = 6.2 m x 3.7 m. Quiet Technology: GE has implemented Quiet Technology on critical components of the Optima MR system to reduce acoustic noise and improve the patient environment. This technology enables full use of the eXtreme Gradient Platform for excellent image quality, while maintaining a safe environment for the patient. The technology encompasses the gradient coil, RF body coil, and magnet mounting.
3	1	M7006HF	SIGNA Artist 1.5T Dock and Switch Collector The Dock and Switch collector provides the interface between the magnet and Express Patient Table with IntelliTouch. Also included is the RF signal switching hardware that routes the input signals to the respective OpTix receivers.
4	1	S7505EK	Preinstallation Collector and Cable Concealment Kit The Preinstallation Collector delivers to the site in advance of the magnet and main electronic components. This facilitates the later delivery and installation of supporting electronics. The following are the main components in the Preinstallation collector: • Heat exchange cabinet for distribution of chilled water. • Primary Penetration wall panel for support of the penetration cabinet. • Secondary Penetration wall panel for support of gradient filters, helium cables,

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			and chilled air and water. • Helium cryocooler hose kit. The Cable Concealment Kit accommodates a wide-range of scan room ceiling heights and is designed to provide a clean-look installation by concealing the overhead cabling from view.
5	1	M3335CB	1.5T Calibration Phantom Kit This 1.5T calibration kit contains a large volume shim phantom, a daily quality assurance phantom, an echo-planar calibration phantom, and the associated loader shells.
6	1	M7000VA	Vibroacoustic Dampening Kit Material in the Vibroacoustic Dampening Kit can significantly attenuate the transmission of gradient-generated acoustic noise through the building structure to nearby areas, including adjacent rooms and floors above or below the MR suite. If this kit is applied during the installation of a new magnet, no additional service charges are necessary. However, installation of the Vibroacoustic Dampening kit under an existing magnet requires special steps. The steps to prepare the site and steps to install, such as modifications to the RF screen room, and other magnet rigging, modifications to the RF screen room, and other finishing work, are not covered in the pricing.
7	1	M7006CF	Artist 1.5T Cable Collector - A
8	1	M7000YS	Gradient Cable Collector - A
9	1	M7000WL	Main Disconnect Panel The Main Disconnect Panel safeguards the MR system's critical electrical components, by providing complete power distribution and emergency-off control.
10	1	M3335CA	Calibration Kit Phantom Holder Cart
11	1	M1000MW	Operator's Console Table Wide table designed specifically for the color LCD monitor and keyboard.
12	1	M3335JZ	English Keyboard Required for our operator console. This keyboard is ergonomically designed to keep your staff comfortable even through the longest shifts. The scan control keyboard assembly has an intercom speaker, microphone, volume controls and emergency stop switch.

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13	1	R32052AC	Standard Service License GE Healthcare has reclassified its service tools, diagnostics and documentation into various classes (please refer to the Service Licensing Notification statement at the beginning of this Quotation). The Standard License provides access to service tools used to perform basic level service on the Equipment and is included at no charge for the warranty period.
14	1	S7526AD	CVWorks XT Package • TRICKS • Inhance Suite TRICKS (Time Resolved Imaging of Contrast KineticS) provides high resolution multi-phase 3D volumes of any anatomy for fast accurate visualization of the vasculature. With segmented complex data recombination, TRICKS can accelerate 3D dynamic vascular imaging without compromising spatial detail. TRICKS also uses elliptic centric data collection for optimized contrast resolution and auto-subtraction for optimized background suppression. The result is time course imaging that does not require timing or triggering, provides high temporal and high spatial resolution, and enables the extraction of optimum phases of data. As a result, TRICKS enables reliable, high quality vascular imaging. TRICKS is compatible with surface coils and supports parallel imaging for even higher temporal resolution. The Inhance Suite application consists of several sequences designed to provide high-resolution images of the vasculature with short-acquisition times and excellent vessel detail. These sequences include: Inhance Inflow IR: Inhance Inflow IR is an angiographic method, which has been developed to image renal arteries with ability to suppress static background tissue and venous flow. This sequence is based on 3D FIESTA, which improves SNR, as well as produce bright blood images. Inhance 3D Velocity: Inhance 3D Velocity is designed to acquire angiography images in brain and renal arteries with excellent background suppression in a short scan time. By combining a volumetric 3D phase contrast acquisition with parallel imaging, efficient k-space traversal, and pulse sequence optimization, Inhance 3D Velocity is capable of obtaining complete Neurovascular imaging in 5-6 minutes. Inhance 3D Deltaflow is a 3D non-contrast enhanced MRA application for peripheral arterial imaging. Inhance 3D Deltaflow is based on the 3D Fast Spin Echo technique and it utilizes the systolic and diastolic flow differences to help generate arterial signal

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			contrast. A subtraction of the systolic phase from the diastolic phase images results in arterial only images, with venous and background suppression. Inhance 2D Inflow: The Inhance 2D Inflow pulse sequence is designed to acquire angiography images of arteries, which follow almost a straight path, i.e. femoral, popliteal, carotid arteries, etc.
15	1	S7526AF	OrthoWorks XT Package • DTI • IDEAL & Flex • Flex for FSE Cube • FiberTrak • Cartigram/T2 Mapping Diffusion Tensor imaging (DTI) creates contrast based on the degree of diffusion anisotropy in cerebral tissues such as white matter. The DTI method expands Echo planar imaging capability to include diffusion imaging sequence using motion sensing gradient pulses along 6 to 155 orientations in order to generate tensor component images. With the Express Workflow, fractional anisotropy (FA) and Volume Ratio Anisotropy (VRA) maps may be automatically created after image acquisition without any user intervention. IDEAL and Flex: Generate consistent tissue contrast and reduce the number of series in an exam with DEAL. The IDEAL acquisition and reconstruction methods can generate a water-only, fat-only, in-phase and out-of-phase data sets for clear tissue differentiation in a single series. In addition, susceptibility artifacts common to MR imaging such as incomplete or inaccurate fat saturation, and chemical shift can be eliminated as well. The IDEAL application acquires multiple echoes and uses unique reconstruction routines to generate the four image contrasts and correct for errors due to tissue susceptibility. IDEAL is ideally suited for imaging anatomical regions such as the brachial plexus, neck, spine, chest, foot, ankle, and axilla where inhomogeneous magnetic fields may yield failures with traditional fat saturation techniques. IDEAL is compatible with Fast Spin Echo, 3D Gradient Echo and parallel imaging. For fast T1w multi-phase imaging of the abdomen and pelvis, LAVA Flex acquisition uses 2D ARC parallel imaging to reduce artifacts from breath hold misregistration and incorrect FOV placement while providing up to four types of T1w-based tissue contrasts: water-only, fat-only, in-phase and out-of-phase. LAVA Flex requires LAVA

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			which is included in. For fast T1w multi-phase imaging of the breast, VIBRANT Flex acquisition uses 2D ARC parallel imaging to enable higher acceleration factors over ASSET parallel imaging, and reduce artifacts from breath hold misregistration and eliminates artifacts due to incorrect FOV placement, while providing up to four types of T1w-based tissue contrasts: water-only, fat-only, in-phase and out-of-phase. VIBRANT Flex requires VIBRANT, which must be purchased separately. The IDEAL method is compatible with ASSET and ARC parallel imaging and is optimized based on the anatomy of interest. FSE and Cube Flex delivers enhanced fat nulled imaging with an efficient two echo flex approach to separate water and fat signals. Outputting 4 images/slice: Fat, Water, In and Opposed phase. FiberTrak: White matter tracts and tissues with high fractional anisotropy are easily displayed and visualized in the 3D Volume Viewer with FiberTrak. This host computer post processing tool expands the capability of Diffusion Tensor imaging by generation of 2D color orientation maps, 2D eigenvector maps, and 3D tractography maps from the diffusion tensor image data. The resulting datasets may be easily saved and archived for later use. Cartigram is a non-invasive imaging method for early detection of osteoarthritis. It quantifies the T2 relaxation of knee cartilage and can overlay the quantified parametric maps over high resolution images for clear visualization of the anatomy. The imaging results are color mapped to indicate whether or not the cartilage structure is breaking down and, if so, to what extent. This information can be used to determine the best course of treatment for the individual patient. In addition, it can be used to monitor the cartilage post-treatment, obviating the need for follow-up arthroscopic surgeries or biopsies.
16	1	M7001SE	FOCUS FOCUS delivers a highly efficient method for increasing the resolution in Single Shot DW EPI sequences. The outcome delivers robust high resolution results while removing artifacts typically induced from motion, image backfolding or unsuppressed tissue. In addition, with the higher efficiency of the application, the reduced field of view imaging leads to a reduction in blurring that translates into an overall improvement to the image quality result. The sequence utilizes 2D selective excitation pulses in DW-EPI acquisitions to limit the prescribed phase encoded field of view at both 1.5T and 3.0T

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			field strengths.
17	1	M7005DB	DISCO DISCO provides highly accelerated LAVA FLEX based volumetric imaging for high resolution 3D volumetric results without compromising temporal imaging performance, and delivering 1.5mm isotropic results of whole organ coverage in as low as 5 seconds. DISCO utilizes a 2point DIXON method to increase the robustness of the technique. The Body Elite Package requires a 32-channel or higher system and high performance ICN.
18	1	M7001SL	3D PROMO 3D PROMO provides a real time 3D navigator based motion correction algorithm correcting for the six rigid body terms where re-acquisition of severely corrupted data provides robust, high quality, motion free, 3D outcomes. 3D PROMO is compatible with both T2 and T2 FLAIR Cube acquisitions.
19	1	M7000EZ	Flow Analysis 4.0 Flow Analysis automates the review and analysis of gated phase contrast magnetic resonance (MR) images and generates a report for the referring physician. This version is available on the host computer. Flow Analysis has an automated edge detection algorithm that propagates through all the phases of the cine phase contrast series. The flow analysis measurement tab displays a summary chart of peak velocities in addition to individual velocity results from each phase of the cardiac cycle. A background correction may also be applied which is particularly suited to slow flowing fluid such as cerebrospinal fluid. Customizable Macros are a feature of Flow Analysis 4.0. These Marcos allow the user to quickly write a report specific to the patient being assessed with simple mouse clicks. The macros are customizable to reflect the language used by the reporting physician. Flow Analysis offers the capability to archive reports or cine images as seen in a DICOM format so they may be viewed on any DICOM viewer.
20	1	M7006AB	ViosWorks 4D (no processing) ViosWorks 4D Cine provides the ability to acquire a whole heart Cine functional exam

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			in a single breath-hold.
21	1	M7006BM	ViosWorks PHI Service Hardware ViosWorks PHI Service Hardware provides components that allow patient data to be removed prior to exiting the hospital firewall. This includes both a computer and associated ancillary equipment to operate and deliver the PHI outcome. This feature is necessary when internal hospital architecture is unable to provide PHI controls. This catalog requires also the ViosWorks application and visualization purchases.
22	1	M7006CA	1.5T 16ch Shoulder Array by Invivo The Shoulder Array is a rigid shell with anterior adaptable paddle which delivers 16 channel performance optimized for high resolution shoulder imaging with lateral coverage to ensure large field of view imaging.
23	1	M7001NL	1.5T 16-channel T/R Knee Array The 16-channel Knee Array is a transmit/receive coil that produces high resolution images of the knee and is optimized for parallel imaging in all three directions to reduce acquisition times.
24	1	M7000SB	1.5T Flex Suite, Premium The Flex Suite is a versatile set of high density 16-channel receive coils designed to give high quality images in a wide range of applications. The high degree of flexibility is particularly advantageous when imaging patients that do not fit the constraints of rigid coils, improving the patient and technologist experience. The size and shape of the elements in each flex coil have been optimized for high SNR and parallel imaging for the volume embraced by the coil. This extended set includes all three sizes of coils; Small, Medium, and Large, and a knee stabilization fixture. They cover a broad range of musculoskeletal applications, including hand, wrist, elbow, shoulder, hip (unilateral and bilateral), knee, ankle, and foot. In addition, the coils' versatility has been shown in a range of general purpose applications that include head, neck, and spine exams. Includes: • 1.5T Flex Coils - Small, Medium, and Large Arrays. • 1.5T Flex Interface Module 16-channel Fixed, P-Connector. • Flex Knee Stabilization fixture.

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			• Flex GP Strap and Interface Module Cover. • Flex Cable Take-up Pad and General Purpose Stabilization Pad.
25	1	E8912CA	GE Optima MR450w Heat Exchangers - 49kW (20Tons) Cooling for your GE Healthcare MR system has never been so easy. GE Healthcare has partnered with the Glen Dimplex Group, a world leader in cooling systems, to offer heat exchangers designed to meet the needs of your MR System. Now you can look to GE Healthcare for your entire MR purchase and support. This heat exchanger is highly reliable and the only unit verified to perform with the new platform of GE Healthcare MR systems. As part of your integrated GE Healthcare solution, you'll work with a single contact throughout the whole installation. A Project Manager of Installation will help with building layout, room designs, delivery and installation - every step until your system is ready to scan. Our team will work seamlessly with architects, contractors and your internal team to help ensure timely, cost-effective completion. Once your cooling system is running, you'll get fast, highly-skilled service support managed through GE Healthcare - with the same quality and response time you expect from your MR system. FEATURES AND BENEFITS o Designed to provide stable fully dedicated cooling for your MR system's needs o Water/glycol outdoor-air-cooled heat exchangers to support your highest exam volumes and your full range of diagnostic procedures o Redundant fluid pumps with automatic switchover let you keep operating with no loss of cooling even if one pump goes down o Quad compressor, dual tandem refrigeration circuit design saves on energy while your system smoothly transitions through the 10% to 100% heat load capacity cycles of patient scanning and idling o Quiet operation between patient exams and overnight - ideal for facilities in residential areas o Comes with installation support, installation visits, preventative maintenance visit and 1 full year of parts and labor warranty o Installation support includes: support through GE's Project Manager of Install, GE's Design Center, technical support from the Glen Dimplex company, two (2) installation visits o Comprehensive and quality service rapidly delivered through our CARES service

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			solution o 65 gallons of 100% glycol concentrate for complete system filling and diluting o Wall mounted remote display panel provides the ability to monitor the system's operation and indicates possible system errors o Filter kit with flow meter helps to ensure purity of water prior to entry to the MR system o Highly recommended that Vibration Isolation Spring Kit (E8911CJ) be added for systems that will be roof top mounted SPECIFICATIONS o Net Cooling Capacity: 49 kW / 20 Ton o Maximum Coolant Flow: 35 gpm (132 l/m) o Coolant Outlet Temperature: 48 F (8.9 C) o Coolant Temp Stability: E 1.8 F (E1.0 C) o Max Coolant Pressure : 70 Psi (4.8 Bar) o Refrigerant: R407C o Ambient Temp Range: -20 to 120 F (-30 to 50 C) o Condenser Air Flow (Approx): 18,000 Cfm o Tank Capacity: 100 gal (378 l) o Flow Meter Range: 4-40 gpm o Filters: 50 micron cartridge filters o Supply Voltage: 460v / 3 phase / 60 Hz o Coolant Connections: 2" NPTF o Overall Size (L x W x H) 44" x 136" x 84.5" COMPATIBILITY: o GE MR450w or MR System NOTES: o Item is NON-RETURNABLE and NON-REFUNDABLE
26	1	W0104MR	TiP Discovery and Optima Family Succeed Elite This program is designed for NEW GE customers who purchase Discovery or Optima systems or CURRENT GE customers purchasing a Discovery or Optima system WITHOUT prior HD/HDx experience. Program content is comprehensive in nature and covers entire system operation and all features/applications. Blended content delivery and design promotes learner retention and more efficient and effective mastery of

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			new and advanced clinical/technical skills. Extended TVA support ensures learners maintain performance over the long term. • 2 Discovery or Optima HQ Classes/sessions (One session is equivalent to one class) • 24 onsite days • 12 hours TVA This training program must be scheduled and completed within 24 months after the date of product delivery.
27	1	W0013MR	TiP Applications Onsite MR Training 4 Days per year over 3 Years Four consecutive days of TiP Applications Onsite MR training presented during the 2nd, 3rd, and 4th year after system purchase. Onsite training provided from 8AM to 5PM, Monday through Friday. Includes T&L expenses.
28	1	Y0000NC	Renovate to SIGNA Artist 1.5T
			3 Year Tech Non-Obso
	1		**MR Approved**
29	3	M9999AC	MR Technology Obsolescence: Forward Production Software, Coils, and Enabling Computing and System Sequence Control Hardware - see attached addendum
			Peds Pos_SWAN_IDEAL_IQ-FGRE-TC_Tag
	1		**Optima MR450w 1.5T IB Options**
30	1	M7005SY	25.1 Software and Tech Pub Upgrade Collector
31	1	R32051CA	DV25/26 Service package delivered for the lifetime of the equipment (20 years) - for upgrades
32	1	M7000PG	IDEAL IQ IDEAL IQ is an acquisition and reconstruction software package that generates water and fat images, relative fat concentration, and R2* relaxation maps. This technique builds upon GE's IDEAL (Iterative Decomposition of water and fat with Echo Asymmetry and Least-squares estimation) technology by incorporating a fast, volumetric multi-echo imaging sequence and an enhanced reconstruction algorithm to improve the visualization of regional fat deposits in-vivo.

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			IDEAL IQ incorporates the following features and functionality: • A fast, multi-echo 3D gradient echo imaging sequence to generate volumetric data. • Parallel imaging to improve acquisition speed and allow breath hold acquisitions. • A low flip angle excitation scheme to reduce T1 bias in the fat, water, and fat fraction maps. • Multi-echo reconstruction processing to calculate R2* decay rate maps. • Magnitude fitting to reduce the influence of phase errors due to system imperfections. • A multi-peak fat model to account for the multiple resonant peaks of fat. • Fully automated, generation and storage of R2* corrected fat and water maps, fat fraction maps, and R2* maps from the data acquired. The IDEAL IQ reconstruction generates R2* corrected fat and water maps as well as an R2* map depicting the signal decay at each voxel in the image. Water and fat images produce the fat fraction map, a relative measure of the quantity of fat to total signal (water and fat signal combined) at each voxel in the image. The fat fraction image is scaled such that a full-scale value represents a voxel containing only fat while a value of zero represents no fat in that voxel.
33	1	M7000JG	FGRE Time Course Fast Gradient Recalled Echo Time Course is a Fast Gradient-echo time-course imaging sequence that utilize single-echo acquisition to reduce sensitivity to echo mis-alignment or system calibration variations, resulting in robust image quality with ghosting and artifact reduction. ASSET parallel imaging and shortened RF pulse design are incorporated to improve temporal resolution and reduce motion related artifacts. In addition to selective notch pulse, it also supports non-selective saturation pulse for excellent background suppression and multi-plane imaging capability.
34	1	M3340AG	SWAN T2 Star-Weighted ANgiography SWAN (also known as SWAN 2.0 for DV platforms) is a high-resolution 3D multi-echo gradient echo sequence that produces weighted averaging across images with different TEs to achieve higher susceptibility weighting. It provides minimum intensity projections over neighboring slices, enhancing contrast for certain tissues containing iron, venous blood, and other substances with susceptibilities that are different than the background tissues. SWAN 2.0 (DV platforms only), outputs an unwrapped phase image leading to increased delineation between calcium products and paramagnetic products (such as blood or iron) to further increase the clinical value of susceptibility

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			imaging. Due to the nature of the weighted averaging of the multi-echo sequence, the SNR of SWAN is higher than that of a single-echo acquisition. SWAN 2.0 helps visualize and delineate small vessels, as well as large vascular structures and iron or calcium deposits in the brain.
35	1	M7000CH	Cardiac Tagging With Cardiac Tagging, an even distribution of spatial saturation lines are applied across the myocardium in the FastCINE Gradient Echo pulse sequence to enable cardiac wall motion assessment. Cardiac Tagging allows the application of 1D diagonal stripes or 2D grid saturation pulses once per R-R interval immediately following the R-wave trigger. Resulting images demonstrate motion (or lack of motion) effects.
36	1	M0049SS	1.5T 6-Ch PA Flex Coil Set - Integrated Preamp The 6-Channel Phased Array Flex Coil is indicated for use in conjunction with a 1.5T MR whole body scanner to produce 2D and 3D images. The 6-Channel Flex coil is compatible with GE MR450 and MR450w 1.5T scanners. This coil has quick disconnect assembly integrated preamps and coil ID. The 1.5T Flex Phased Array coil is a 6-element and 6-channel coil. The coil is low profile, is packaged to maximize positioning capability, and has three visualization openings in each coil. The two coil halves are contained in a flexible foam package. This package has a cleanable, coated surface. The flexibility of the coil makes it easy to wrap the coil around the area of interest. In addition to anterior/posterior positioning, coils can also be positioned laterally around the head. The two coil halves each have one RF cable that connects onto the quick disconnect assembly which plugs into the phased array port on the carriage cover. The coil can be operated while both coils are connected or only when a single coil is connected. Each array is labeled with coil alignment marking for positioning to ensure proper placement on the patient. • Coil Half Dimensions: (L x W x H) 30cm (11.8in) x 30cm (11.8in) x 2cm (0.8in). • Maximum Field of View: 24cm (9.5 in). • Cable Length: 155 cm (61 in).
37	1	M7005BD	Flex Pediatric Positioner The Flex Pediatric Positioner provides 32-channel coil performance for small pediatric patients, including total neuro exams through a combination of the Flex medium and large arrays.
38	2	M0030RT	MR Radiation Oncology Positioning Insert

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			The GE MR Radiation Oncology Positioning insert (also referred to as Radiation Therapy positioning couch) provides the flat surface and industry standard indexing notches with labeling, required for fixation of radiation oncology positioning packages to the table. This allows patients to be positioned for MR imaging in the same manner as they would for treatment. • The insert is secured to the GEM Express Table with adjustable locating tabs that ensure a tight fit. • The insert weight: 24 lbs. • The insert dimensions: 2040 mm (80.32 in.) long x 530 mm (20.87 in.) wide x 34mm (1.3 in.) high at center. • Patient comfort straps are usable along the entire length of the insert. • Removable coil positioning bracket for holding flexible coils lateral to the head. • Compatible with the GEM Express Table and the Posterior and Anterior Arrays of the GEM RF Coil Suite.
39	2	M0002RT	MR Compatible 3-pin Lok-Bar The MR compatible 3-pin Lok-Bar provides fixation of the various baseplates to the table. The 3-pin configuration differentiates it from the Lok-Bars used for CT to help reduce the ability to use non-MR compatible devices and further improve safety. • The 3-pin Lok-Bar (Interloc style) accommodates GE's 53cm width industry standard radiation oncology positioning inserts and 3-pin compatible positioning devices.
40	1	M7002RT	1.5T 8-ch GEM Open RT Head/Neck Kit Plus 6-ch Flex Array The GEM RT Open Head and Neck Kit includes the 6-Channel Flex coil and the GEM RT Open Array. The GEM RT Open Head and Neck Kit, when combined with the 16-Channel Large GEM Flex coil, is designed to provide high resolution, full field of view head and neck imaging in the presence of radiation therapy positioning devices and thermoplastic masks. When used together, they provide generous coverage (50 cm x 50 cm) with high RF signal (30 elements) of the head, neck and brachial plexus regions of the body. The open design accommodates patient comfort and imaging in the presence of medical devices which may otherwise prevent the use of the traditional Head Neck Unit coil. The GEM RT Open Array is an 8-Channel Phased Array coil, sold as an option to the Optima MR450w GEM suite. It is a posterior coil which can be inserted into the GEM cradle at either the head or foot end. The GEM RT Open Array elements were designed to provide the optimal penetration, uniformity and signal to noise ratio (SNR) for the posterior head-neck and brachial plexus regions. The GEM RT Open Array has an

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			element topology designed to optimize ASSET and ARC. The GE 6-Channel Flex coil enables high resolution brain/head and neck imaging utilizing industry-standard radiation therapy masks and neck supports. The semi-rigid structure of this open-design coil accommodates a wide range of patient positions and sizes, as well as accessories that will not fit into standard head coils. The 6-Channel Flex coil can be used alone or in combination with the GEM RT Open Array for even higher SNR imaging of the brain. The 6-Channel Flex coil integrates with a detachable coil positioning frame, which can easily be placed on the GE MR Radiation Oncology insert. The frame is designed to help position the flexible coil laterally around a patient's head and associated patient positioning devices and to provide reproducible coil positioning. The frame can be easily removed from the table to enable flexible patient positioning in body imaging. The positioning device is adjustable in that lateral and SI adjustments of the coil can be made, and the coil can be rotated to provide optimal imaging for brain, as well as head and neck when using the GEM RT Open Head and Neck Suite. A detachable positioning support, designed for the 16-Channel Large GEM Flex coil, can be easily mounted to the 6-Channel Flex coil support. It is designed to allow positioning of the coil as close to the body as possible without touching the patient or thermoplastic mask and to provide reproducible coil positioning. The positioning device is adjustable in the vertical direction to accommodate different sized patients. A swivel joint allows for angling of the Large GEM Flex coil to achieve close proximity to the neck region. A pre-amp box pad is included to hold the pre amp box of the 16-Channel Large GEM Flex coil and provides patient comfort. A cable guide is included to help position the 6-Channel Flex coil cables.
41	1	W0116MR	Two Days Applications Training MR Oncology Package 2 Consecutive Days of Onsite applications training for the MR Oncology Package. This program covers only the MR Oncology Package features and should be combined with the standard system training when the MR Oncology Package is purchased in conjunction with a new MR system. Training is provided from 8AM to 5PM, Monday through Friday. Includes T&L expenses. Days provided consecutively. This training program must be scheduled and completed withing 12 months after the date of product delivery.
			3D ASL

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	1		**SIGNA Pioneer 3.0T IB Options**
42	1	S7505ZJ	3D ASL (Arterial Spin Labeling) for MR750 & MR450 & Pioneer 3D ASL utilizes water in arterial blood as an endogenous contrast media to help visualize tissue perfusion and provide quantitative assessment of cerebral blood flow (CBF) in ml/100 g/min. The quantitative CBF maps can be generated and stored in DICOM format. 3D ASL deploys stacked spiral FSE readout with modulated flip angle to acquire 3D data with increased SNR and less image distortion compared to conventional 2D EPI-based ASL techniques. A pulsed-continuous labeling is applied to label arterial blood close to the imaging volume thus improving conspicuity of flowing blood. Selective, interwoven pulses are then used to saturate and invert the imaging volume, in order to achieve better background suppression, and reduce sensitivity to motion. The isotropic 3D volume data can be reformatted to axial, sagittal, coronal or oblique planes. 3D ASL helps generate robust, reproducible images and perfusion maps with high SNR, reduced motion artifacts and less distortion in high magnetic susceptibility regions.
			Automatic Water Bypass
	1		**MR Accessories - Optima MR450w 1.5T**
43	14	E8911CZ	Are your MR customers asking for a combined cooling solution for the MR magnet and air-handling; or, requesting a custom accessory for their Dimplex chiller? Here is your opportunity to provide 100% customer centric cooling solutions for your MR customers. To enable you to quote custom solutions, Accessories & Supplies has created an E-cat for custom cooling solutions.
			Hospital DV26 Upgrade
	1		**Optima MR450w 1.5T IB Options**
44	1	S7526DA	SIGNA™Works, ICN & Host Upgrade with FSE Flex & Cube Flex The SIGNA™Works Upgrade for your Discovery MR750w GEM, Discovery MR750w, Discovery MR750, Optima MR450 GEM and/or Optima MR450w system delivers our new SIGNA™Works (DV26.0) operating software and clinical applications tools, along with a new computing platform and image reconstruction engine (ICN). • SIGNA™Works with READYView • Host PC computing platform

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Item No.	Qty	Catalog No.	Description

- Image reconstruction engine
- Flex for FSE and Flex for FSE Cube

SIGNA™Works delivers core pulse sequences, applications and imaging options as well as workflow enhancements and visualization tools to enable high productivity with exceptional image quality through six optimized toolkits:

Key NeuroWorks tools:
- Flex fat-water separation imaging for FSE and Cube
- PROPELLER MB motion robust radial FSE now including T1 and Fat suppression (STIR and ASPIR)
- 3D Cube FSE-based 3D imaging including Dual Inversion Recovery
- BrainStat AIF parametric maps
- eDWI multi b-value, variable NEX diffusion imaging
- ReadyBrain automated brain exam prescription
- 3D COSMIC modified steady state imaging
- 3D BRAVO IR prepared fast SPGR imaging
- PROBE PRESS single voxel spectroscopy
- READYView and BrainView advanced visualization

Key OrthoWorks tools:
- MARS High Bandwidth for FSE
- PROPELLER MB motion robust radial FSE now with T1 and Fat Suppression (STIR and ASPIR)
- 3D Cube FSE
- 3D COSMIC
- READYView advanced visualization

Key BodyWorks tools:
- Flex for FSE and Cube
- Body Navigators pencil-beam diaphragm tracker
- PROPELLER MB for motion robust radial FSE including PB Navigator and fat suppression (STIR/ASPIR)
- Turbo LAVA with Turbo ARC
- Enhanced SSFSE
- MultiPhase DynaPlan

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Item No.	Qty	Catalog No.	Description

- SmartPrep
- READYView and BodyView advanced visualization

Key OncoWorks tools:
- Flex for FSE and Cube
- Body Navigators pencil-beam diaphragm tracker
- PROPELLER MB for motion robust radial FSE including PB Navigator and fat suppression (STIR/ASPIR)
- eDWI multi b-value, variable NEX diffusion imaging
- READYView, BrainView and BodyView advanced visualization

Key CVWorks tools:
- Double-Triple IR-FSE with spectral fat suppression
- FastCine FGRE-based, gated multi-phase imaging
- 2D FIESTA Cine steady-state, gated multi-phase imaging
- MDE Plus Phase Sensitive Single shot and Multi-shot options
- Cine IR
- StarMap
- Single shot black blood FSE

Key PaedWorks tools:
- Flex for FSE and Cube
- PROPELLER MB motion robust radial FSE now including T1 and Fat suppression (STIR and ASPIR)
- PROPELLER 3.0 FSE-based diffusion imaging
- 3D Cube FSE-based 3D imaging including Dual Inversion Recovery
- BrainSTAT AIF parametric maps
- Body Navigators pencil-beam diaphragm tracker
- eDWI multi b-value, variable NEX diffusion imaging
- Black Blood SSFSE
- READYView, BrainView and BodyView advanced visualization

READYView is an advanced visualization tool designed to simplify the quantitative analyses of multiple data sets. READYView automatically selects the most relevant post-processing protocol for the user and provides guided workflow and general assistance for the processing algorithms. In addition, the user can customize

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Item No.	Qty	Catalog No.	Description
			workflows with adjustable layouts, personalized parameter settings, and custom review steps. Key capabilities of READYView include the ability to analyze, export and save: • Time series • Diffusion weighted series • Diffusion tensor series • Variable echo series • Blood oxygen level dependent series (functional data) • Spectroscopy data (single voxel and 2D or 3D CSI) • Elastography series
45	1	W0004MR	4 Days MR TiP Onsite Training Four Days MR Onsite Training provided from 8AM to 5PM, Monday through Friday. Includes T&L expenses. Days provided consecutively. This training program must be scheduled and completed within 12 months after the date of product delivery.
	1		Edgecomb DV26 Upgrade **Optima MR450w 1.5T IB Options**
46	1	S7526DA	SIGNA™Works, ICN & Host Upgrade with FSE Flex & Cube Flex The SIGNA™Works Upgrade for your Discovery MR750w GEM, Discovery MR750w, Discovery MR750, Optima MR450 GEM and/or Optima MR450w system delivers our new SIGNA™Works (DV26.0) operating software and clinical applications tools, along with a new computing platform and image reconstruction engine (ICN). • SIGNA™Works with READYView • Host PC computing platform • Image reconstruction engine • Flex for FSE and Flex for FSE Cube SIGNA™Works delivers core pulse sequences, applications and imaging options as well as workflow enhancements and visualization tools to enable high productivity with exceptional image quality through six optimized toolkits: Key NeuroWorks tools: • Flex fat-water separation imaging for FSE and Cube

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Item No.	Qty	Catalog No.	Description

• PROPELLER MB motion robust radial FSE now including T1 and Fat suppression (STIR and ASPIR)
• 3D Cube FSE-based 3D imaging including Dual Inversion Recovery
• BrainStat AIF parametric maps
• eDWI multi b-value, variable NEX diffusion imaging
• ReadyBrain automated brain exam prescription
• 3D COSMIC modified steady state imaging
• 3D BRAVO IR prepared fast SPGR imaging
• PROBE PRESS single voxel spectroscopy
• READYView and BrainView advanced visualization

Key OrthoWorks tools:
• MARS High Bandwidth for FSE
• PROPELLER MB motion robust radial FSE now with T1 and Fat Suppression (STIR and ASPIR)
• 3D Cube FSE
• 3D COSMIC
• READYView advanced visualization

Key BodyWorks tools:
• Flex for FSE and Cube
• Body Navigators pencil-beam diaphragm tracker
• PROPELLER MB for motion robust radial FSE including PB Navigator and fat suppression (STIR/ASPIR)
• Turbo LAVA with Turbo ARC
• Enhanced SSFSE
• MultiPhase DynaPlan
• SmartPrep
• READYView and BodyView advanced visualization

Key OncoWorks tools:
• Flex for FSE and Cube
• Body Navigators pencil-beam diaphragm tracker
• PROPELLER MB for motion robust radial FSE including PB Navigator and fat suppression (STIR/ASPIR)
• eDWI multi b-value, variable NEX diffusion imaging

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Item No.	Qty	Catalog No.	Description

• READYView, BrainView and BodyView advanced visualization

Key CVWorks tools:
• Double-Triple IR-FSE with spectral fat suppression
• FastCine FGRE-based, gated multi-phase imaging
• 2D FIESTA Cine steady-state, gated multi-phase imaging
• MDE Plus Phase Sensitive Single shot and Multi-shot options
• Cine IR
• StarMap
• Single shot black blood FSE

Key PaedWorks tools:
• Flex for FSE and Cube
• PROPELLER MB motion robust radial FSE now including T1 and Fat suppression (STIR and ASPIR)
• PROPELLER 3.0 FSE-based diffusion imaging
• 3D Cube FSE-based 3D imaging including Dual Inversion Recovery
• BrainSTAT AIF parametric maps
• Body Navigators pencil-beam diaphragm tracker
• eDWI multi b-value, variable NEX diffusion imaging
• Black Blood SSFSE
• READYView, BrainView and BodyView advanced visualization

READYView is an advanced visualization tool designed to simplify the quantitative analyses of multiple data sets. READYView automatically selects the most relevant post-processing protocol for the user and provides guided workflow and general assistance for the processing algorithms. In addition, the user can customize workflows with adjustable layouts, personalized parameter settings, and custom review steps. Key capabilities of READYView include the ability to analyze, export and save:
• Time series
• Diffusion weighted series
• Diffusion tensor series
• Variable echo series
• Blood oxygen level dependent series (functional data)
• Spectroscopy data (single voxel and 2D or 3D CSI)

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Item No.	Qty	Catalog No.	Description
			• Elastography series
47	1	W0004MR	4 Days MR TiP Onsite Training Four Days MR Onsite Training provided from 8AM to 5PM, Monday through Friday. Includes T&L expenses. Days provided consecutively. This training program must be scheduled and completed within 12 months after the date of product delivery.
	1		Chowan DV26 Upgrade **Optima MR450w 1.5T IB Options**
48	1	S7526DA	SIGNA™Works, ICN & Host Upgrade with FSE Flex & Cube Flex The SIGNA™Works Upgrade for your Discovery MR750w GEM, Discovery MR750w, Discovery MR750, Optima MR450 GEM and/or Optima MR450w system delivers our new SIGNA™Works (DV26.0) operating software and clinical applications tools, along with a new computing platform and image reconstruction engine (ICN). • SIGNA™Works with READYView • Host PC computing platform • Image reconstruction engine • Flex for FSE and Flex for FSE Cube SIGNA™Works delivers core pulse sequences, applications and imaging options as well as workflow enhancements and visualization tools to enable high productivity with exceptional image quality through six optimized toolkits: Key NeuroWorks tools: • Flex fat-water separation imaging for FSE and Cube • PROPELLER MB motion robust radial FSE now including T1 and Fat suppression (STIR and ASPIR) • 3D Cube FSE-based 3D imaging including Dual Inversion Recovery • BrainStat AIF parametric maps • eDWI multi b-value, variable NEX diffusion imaging • ReadyBrain automated brain exam prescription • 3D COSMIC modified steady state imaging • 3D BRAVO IR prepared fast SPGR imaging • PROBE PRESS single voxel spectroscopy

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Item No.	Qty	Catalog No.	Description

• READYView and BrainView advanced visualization

Key OrthoWorks tools:
• MARS High Bandwidth for FSE
• PROPELLER MB motion robust radial FSE now with T1 and Fat Suppression (STIR and ASPIR)
• 3D Cube FSE
• 3D COSMIC
• READYView advanced visualization

Key BodyWorks tools:
• Flex for FSE and Cube
• Body Navigators pencil-beam diaphragm tracker
• PROPELLER MB for motion robust radial FSE including PB Navigator and fat suppression (STIR/ASPIR)
• Turbo LAVA with Turbo ARC
• Enhanced SSFSE
• MultiPhase DynaPlan
• SmartPrep
• READYView and BodyView advanced visualization

Key OncoWorks tools:
• Flex for FSE and Cube
• Body Navigators pencil-beam diaphragm tracker
• PROPELLER MB for motion robust radial FSE including PB Navigator and fat suppression (STIR/ASPIR)
• eDWI multi b-value, variable NEX diffusion imaging
• READYView, BrainView and BodyView advanced visualization

Key CVWorks tools:
• Double-Triple IR-FSE with spectral fat suppression
• FastCine FGRE-based, gated multi-phase imaging
• 2D FIESTA Cine steady-state, gated multi-phase imaging
• MDE Plus Phase Sensitive Single shot and Multi-shot options
• Cine IR
• StarMap

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Item No.	Qty	Catalog No.	Description
			• Single shot black blood FSE Key PaedWorks tools: • Flex for FSE and Cube • PROPELLER MB motion robust radial FSE now including T1 and Fat suppression (STIR and ASPIR) • PROPELLER 3.0 FSE-based diffusion imaging • 3D Cube FSE-based 3D imaging including Dual Inversion Recovery • BrainSTAT AIF parametric maps • Body Navigators pencil-beam diaphragm tracker • eDWI multi b-value, variable NEX diffusion imaging • Black Blood SSFSE • READYView, BrainView and BodyView advanced visualization READYView is an advanced visualization tool designed to simplify the quantitative analyses of multiple data sets. READYView automatically selects the most relevant post-processing protocol for the user and provides guided workflow and general assistance for the processing algorithms. In addition, the user can customize workflows with adjustable layouts, personalized parameter settings, and custom review steps. Key capabilities of READYView include the ability to analyze, export and save: • Time series • Diffusion weighted series • Diffusion tensor series • Variable echo series • Blood oxygen level dependent series (functional data) • Spectroscopy data (single voxel and 2D or 3D CSI) • Elastography series
49	1	W0004MR	4 Days MR TiP Onsite Training Four Days MR Onsite Training provided from 8AM to 5PM, Monday through Friday. Includes T&L expenses. Days provided consecutively. This training program must be scheduled and completed within 12 months after the date of product delivery.
			Quote Summary:

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General Electric Company, GE Healthcare Division

GE Healthcare

Date: 02-24-2017
Quote #: PR16-C14252
Version #: 2

Item No.	Qty	Catalog No.	Description	
			Total Quote Net Selling Price	**$2,522,650.16**
			(Quoted prices do not reflect state and local taxes if applicable. Total Net Selling Price Includes Trade In allowance, if applicable.)	

Options

(These items are not included in the total quotation amount)

Item No.	Qty	Catalog No.	Description	Ext Sell Price	
			SIGNA Artist 1.5T - 96ch 1.5T		
50	1	M7006AA	HyperBand HyperBand reduces scan time by delivering multiple slices for single shot EPI/Diffusion in one go up to reduction factors of 6x.	$65,000.00	X_____
51	1	M7006AG	HyperCube HyperCube delivers reduced field of view imaging for 3D Cube acquisitions by selectively acquiring/reconstructing fewer k-space lines which leads to scan time reduction and artifact control through a selective excitation approach.	$45,000.00	X_____

(Quoted prices do not reflect state and local taxes if applicable. Total Net Selling Price Includes Trade In allowance, if applicable.)

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Appendix B

Equipment Comparison Table and Brochures

Equipment Comparison

	EXISTING EQUIPMENT	REPLACEMENT EQUIPMENT
Type of Equipment (List Each Component)	MRI Scanner	MRI Scanner
Manufacturer of Equipment	GE	GE
Tesla Rating for MRIs	1.5	1.5
Model Number	Signa Excite HD	Signa Artist
Serial Number	# R686	TBD
Provider's Method of Identifying Equipment	MRI#1	MRI#1
Specify if Mobile or Fixed	Fixed	Fixed
Mobile Trailer Serial Number/VIN #	NA	NA
Mobile Tractor Serial Number/VIN #	NA	NA
Date of Acquisition of Each Component	April 2000	January 2018 (proposed)
Does Provider Hold Title to Equipment or have a Capital Lease?	Title	Title (proposed)
Specify if Equipment Was/Is New or Used When Acquired	New	New (proposed)
Total Capital Cost of Project (including construction, etc.)	$2,566,610	$3,022,560
Total Cost of Equipment	$2,266,610	$2,522,560
Fair Market Value of Equipment	$0	$2,522,560
Net Purchase Price of Equipment		$2,522,560
Locations Where Operated	Vidant Medical Center	Vidant Medical Center
Number Days in Use to be Used in N.C. Per Year	365	365
Percent of Change in Patient Charges (by Procedure)	0	0
Percent of Change in Per Procedure Operation Expenses(by Procedure)	0	0
Type of Procedures Currently Performed on Existing Equipment	MRI Imaging Procedures	
Type of Procedures New Equipment's Capable of Performing		MRI Imaging Procedures

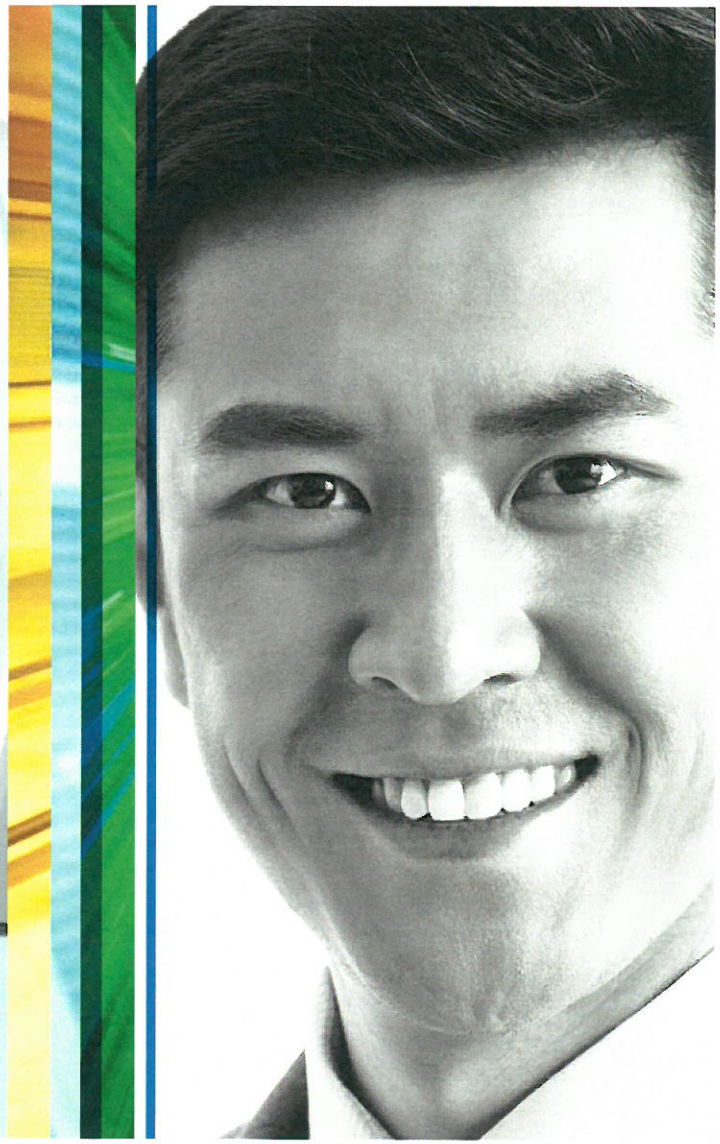
GE Healthcare

Surpass

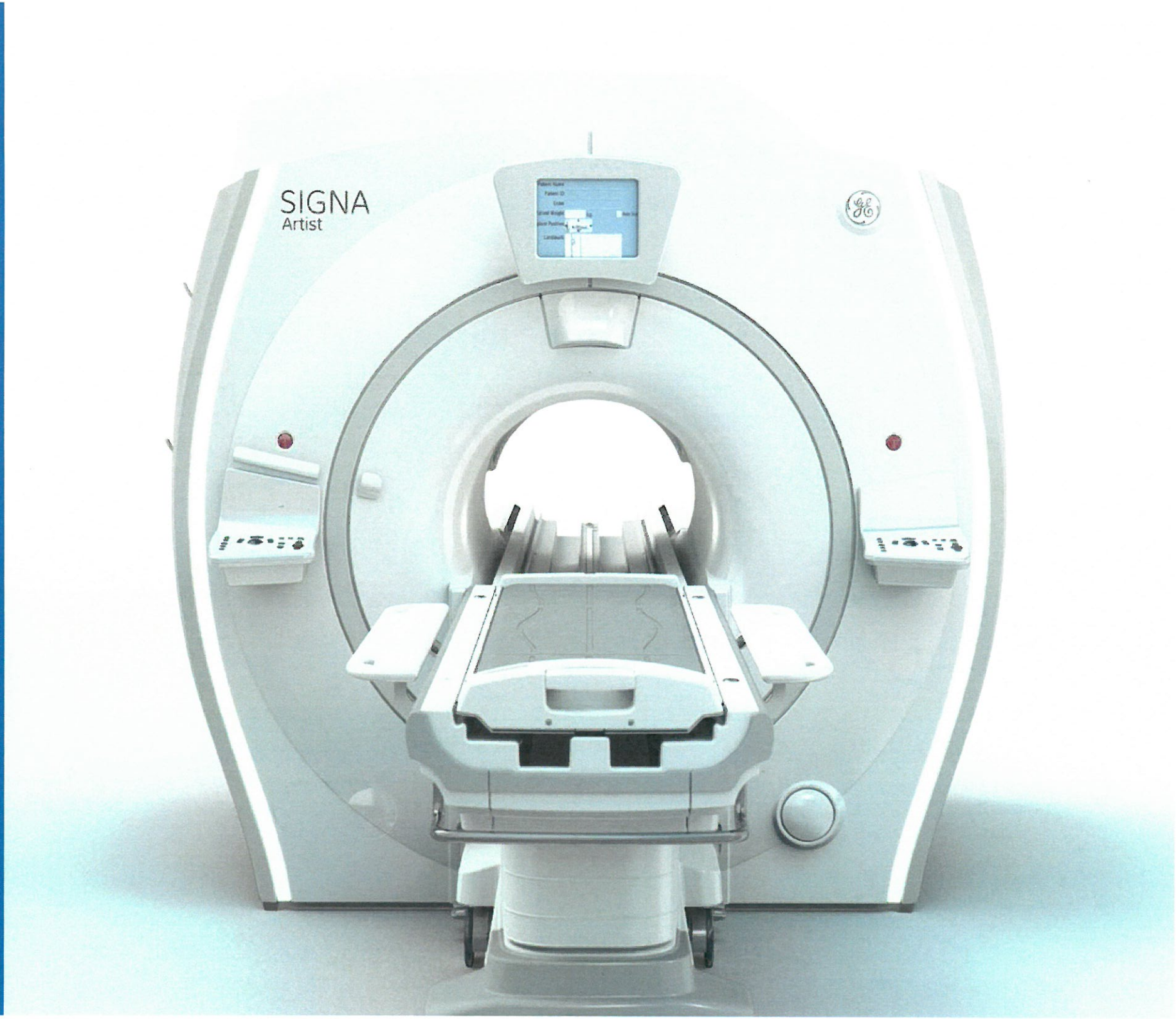
the unimaginable and make it the expected.

SIGNA™ Artist

Imagine what MR can be.



Artist is not yet CE marked. May not be placed on the market or placed into service until made to comply with CE marking. Not commercially available in all regions.


SIGNA
Artist

Unleash

Clear advances with clear advantages.

Now the potential for MR is even more astonishing with the SIGNA™ Artist, the most advanced and intuitive 1.5T engineering in MR technology from GE Healthcare. Fueled by our new SIGNA™Works productivity platform, the SIGNA™ Artist is a harmonious design of form and function. Everything in its blueprint is crafted to significantly energize your productivity, enhance security, improve diagnostics and boost your bottom line.

Welcome to the future of MR. Surpass the unimaginable with SIGNA™ Artist.


SIGNA™ Works
fueling the future of MR

SIGNA™Works

The new standard is extraordinary.

Our new SIGNA™Works platform redefines productivity across the breadth of our core imaging techniques with solutions. The SIGNA™Works standard applications portfolio is an extensive set of high quality and efficient imaging capabilities that enables you to achieve desired outcomes across your entire practice area.

SIGNA™Works is the lifeblood, the soul and the muscle – literally the fuel that drives your imaging to the next level and beyond. SIGNA™Works standard applications come pre-loaded with the SIGNA™ Artist as a fully integrated solution. It's value-added technology that's upgradeable and can be customized further, giving you the flexibility to add applications to suit the needs of your growing practice.

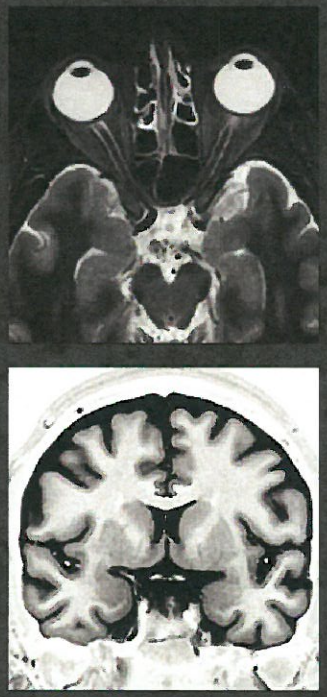
SIGNA™Works takes full advantage of TDI (Total Digital Imaging), further advancing diagnostics and quickening throughput, while simultaneously improving patient outcomes and your ROI.

Energize

Phenomenal exams to meet your clinical needs.

The SIGNA™Works applications portfolio contains NeuroWorks, OrthoWorks, BodyWorks, OncoWorks, CVWorks and PaedWorks. These imaging solutions cover a wide variety of contrasts, 2D and 3D volumetric data, including motion correction capabilities. SIGNA™Works provides all the tools you need to complete a clinical exam.

Cube DIR
1.6 x 1.6 x 1.6mm



T2 STIR PROPELLER
Axial 0.77 x 0.77 x 2mm
Coronal 0.77 x .077 x 3mm

NeuroWorks

This one-stop solution enables you to image brain, spine, vascular and peripheral nerve anatomy with exceptional tissue contrast. These motion-insensitive techniques feature single-click auto alignment, providing the complete neuro solution from scanning to post processing.

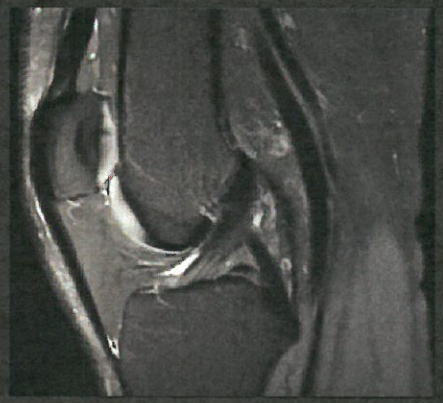
NeuroWorks also includes Cube, our 3D volumetric imaging suite, standard with every system. This application allows you to suppress CSF and either white or gray matter to increase lesion conspicuity.

PROPELLER MB, our latest PROPELLER enhancement, is a multi-shot approach that preserves tissue contrast regardless of weighting while also reducing motion artifacts. Additionally, this new technique introduces new contrasts such as T1 FSE.

OrthoWorks

This extensive library of musculoskeletal imaging techniques enables you to image bone, joint and soft tissue with remarkable tissue contrast.

OrthoWorks also includes 3D volumetric Cube with proton-density, combined with ASPIR, which enables improved fat suppression uniformity, which is routinely done as three separate 2D scans. With one 3D acquisition and multi-planar reformats, Cube may replace individual 2D scans.



PD FatSat Cube Sagittal
0.6 x 0.6 x 0.6mm

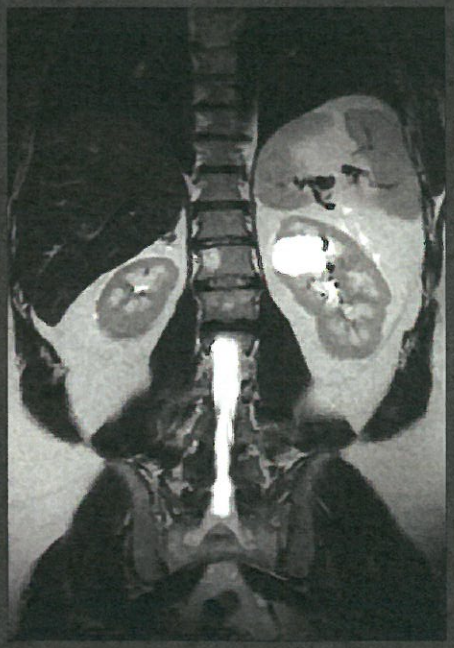
PROPELLER PD Coronal
0.4 x 0.4 x 3mm

BodyWorks

With BodyWorks, we address one of the fastest growing areas in MR. This all-inclusive library allows you to image abdominal and pelvic anatomy with user flexibility to adapt to different patient types.

PB Navigators are GE's solution to combat respiratory motion in abdominal imaging. This free-breathing approach is compatible with multiple pulse sequences including diffusion, PROPELLER MB, MRCP and dynamic T1 imaging.

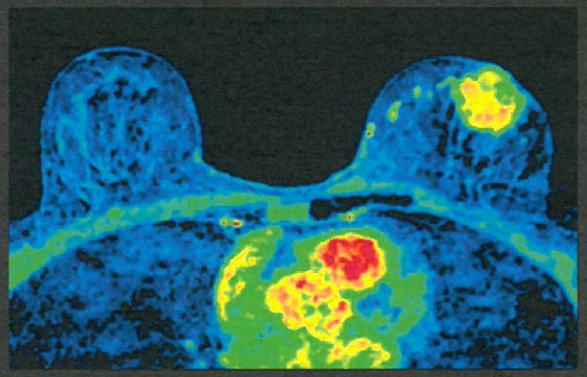
Navigated Turbo LAVA for Pancreas
1.6 x 1.6 x 2mm



Coronal T2 SSFSE Large FOV

3D MRCP
1 x 1 x 1.6mm

Axial T2 FatSat PROPELLER Navigated



Axial T1 Dynamic Contrast
Positive Enhancement Integral Map

Coronal T2 PROPELLER
0.6 x 0.6 x 4mm

OncoWorks

This extensive library of techniques captures anatomic and morphologic data to uniquely enable oncological assessment of the anatomy. OncoWorks includes robust tissue contrast, motion-insensitive, high temporal and spatial resolution imaging.

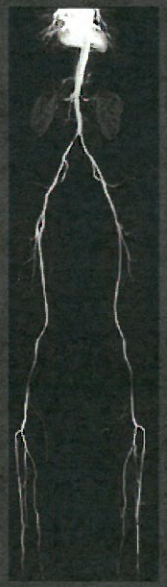
3D volumetric imaging with an optimized adiabatic fat suppression, combined with ARC or ASSET, provides high spatial and temporal resolution capture contrast uptake patterns. The images on the left show lesion characteristics generated using AW VS7's positive enhancement map. The T2 PROPELLER image demonstrates small FOV and motion-correction through the prostate.

CVWorks

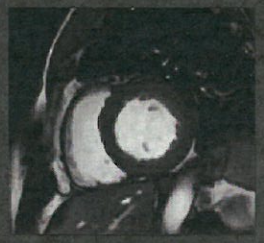
With our intuitive cardiac techniques, you can assess morphology, flow, function and tissue viability plus gain crucial insights into vascular structure and flow dynamics. CVWorks provides the flexibility to adapt to different patient types with exams that vastly simplify workflow.

With CVWorks, multi breath-hold imaging can be a thing of the past. Our latest Single Shot MDE and Black Blood techniques provide patient-friendly alternatives to uncomfortable breath-holds.

With our workflow-simplified QuickStep protocols, scanning whole body vasculature can be done in less than 6 minutes. High-performance gradients allow bright blood pool and myocardial tissue contrast on FIESTA Cine while preserving spatial resolution.

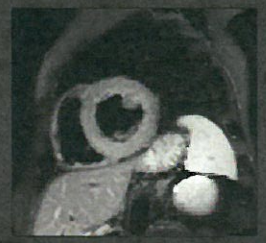


QuickStep MRA

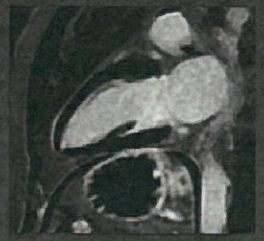


Short Axis 2D
FIESTA Cine

Black Blood – T1

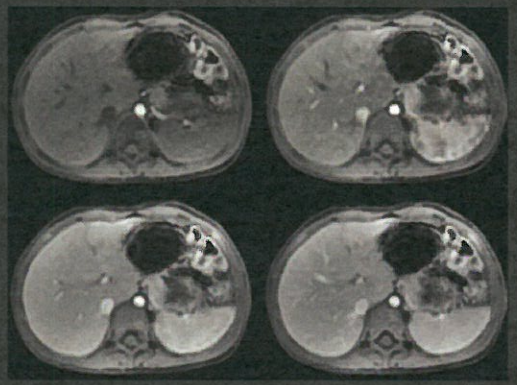


Black Blood – SSFSE T2
ASPIR

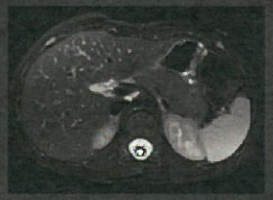


PS MDE

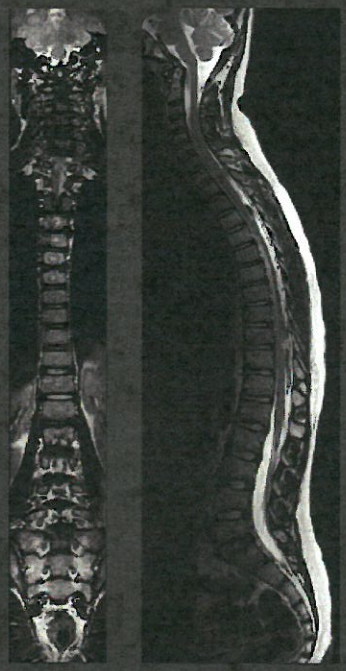
4ch FIESTA Cine



Navigated Turbo LAVA
Free Breathing Dynamic Liver
1.2 x 1.7 x 2.6mm
:25 sec / phase



Axial T2 FatSat
FOV 24cm
0.9 x 1.1 x 5mm

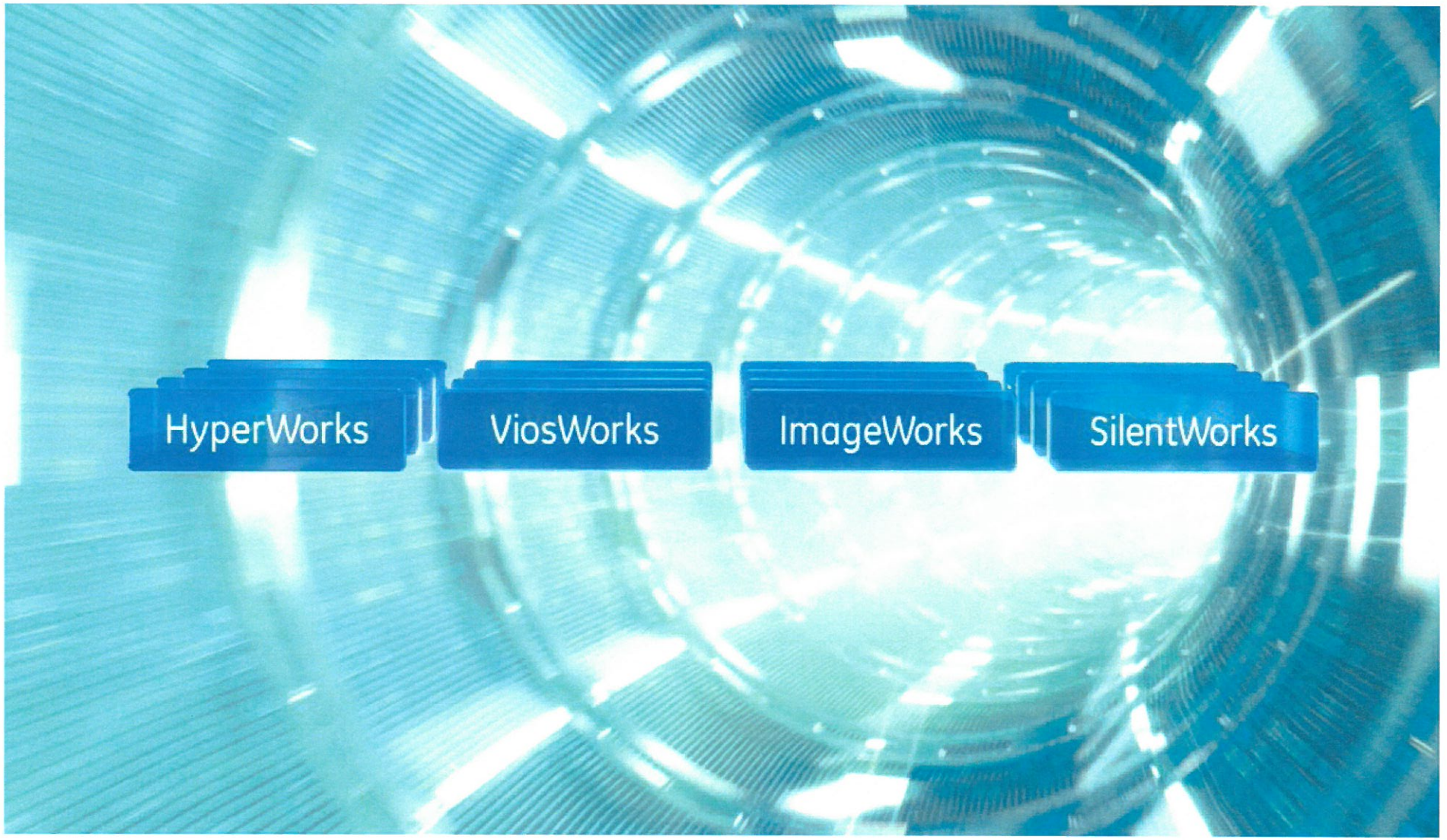


Sagittal T2 Cube Pasted
1 x 1 x 1.4mm

PaedWorks

PaedWorks provides specialized protocols to simply address the needs of your smallest, most fragile patients. Techniques such as PB Navigators combined with PROPELLER MB are used with advanced techniques like diffusion imaging, allowing for patient-friendly, entirely free-breathing exams. Additionally, cardiac exams using Single Shot MDE provide faster, more reliable results.

Images on the left demonstrate dynamic T1 imaging with PB Navigator, which enables the patient to breathe freely while capturing contrast in fast temporal phases. Whole spine evaluation can be obtained simply with routine T2 frFSE imaging.


HyperWorks
ViosWorks
ImageWorks
SilentWorks

Expand

Broaden your areas of expertise.

Take your expertise to the next level when you move beyond the standard with SIGNA™Works innovative applications. Improved image quality, higher efficiency and a more streamlined workflow help you perform better than ever before.

HyperWorks
HyperWorks means hyper scanning with astonishing imaging and impressive speed. Exclusively introduced on SIGNA™ Artist's hardware and TDI platform, HyperWorks includes HyperSense, which delivers up to 8x faster results.*
** When used in combination with ARC.*

ViosWorks
For the first time, all 7 dimensions of information; 3D in space, 1D in time and 3D in velocity can be captured in a 10-minute or less cardiovascular scan. ViosWorks includes a cloud-based, real-time visualization tool, powered by Arterys™. ViosWorks is truly groundbreaking as it reduces the complexity and cost of cardiac imaging with improved results in a shorter amount of time.

SilentWorks
SilentWorks is GE's most advanced noise-reducing technology and strengthens our promise to transform the patient experience. Traditional exams can be as loud as a rock concert, but our innovative SilentWorks technology reduces sound levels to roughly the same as ambient noise.

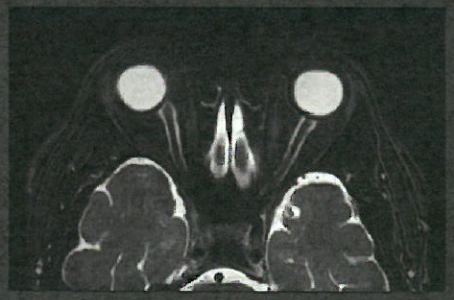
ImageWorks
ImageWorks boosts your overall MR performance through automation and advanced post-processing capabilities. READYView visualization and MAGiC one-and-done scanning help ensure consistent and clear results.

HyperSense is 510(k) pending with the FDA. Not available for sale in the United States and may not be commercially available in other regions.

HyperWorks

HyperCube

HyperCube expands the capabilities of 3D imaging, allowing you to significantly reduce scan times and eliminate artifacts such as motion and aliasing by reducing the phase field of view without the presence of aliasing artifacts.



Axial T2 HyperCube Flex Orbits
Water Image
0.6 x 0.8 x 1.00mm^3
3:19 min

Sagittal T1 HyperCube Flex
Water Image
1 x 1 x 1.4mm^3
3:01 min

HyperSense

With HyperSense, you can obtain images with significantly fewer samples, thereby reducing the overall scan time without compromising spatial resolution or image quality. HyperSense is not dependent on coil geometry and is less sensitive to image artifacts or SNR loss at higher accelerations when compared to conventional parallel imaging techniques.

Sagittal PD Cube FatSat
16ch T/R Knee Coil
0.5 x 0.5 x 0.5mm^3
5:18 min

Sagittal 3D Cube DIR
(Coronal Reformat)
1.3 x 1.3 x 1.4mm^3
4:02 min

Time of Flight
0.7 x 0.8 x 1.00mm^3
2:38 min

Coronal T2 HyperCube Flex
Water Image
1.2 x 1.2 x 1.4mm^3
4:56 min

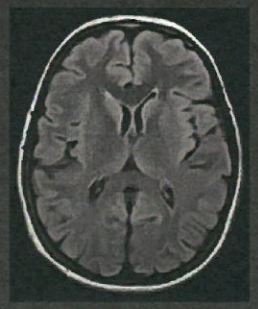
ViosWorks

ViosWorks, powered by Arterys™, provides detailed quantitative flow, regurgitant measurements and stroke volume. Thickness and mass and ejection fractions can be obtained with this precise and non-invasive solution.

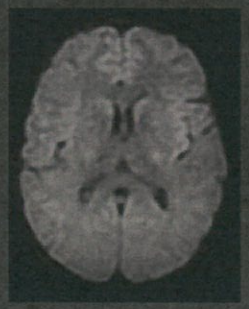
SilentWorks

SilentWorks is available across all anatomies and can be done with multiple weightings and coils, including DWI. Zero TE techniques enable imaging in vasculature structures with less artifacts that are commonly seen on traditional scans. And with new enhancements like 3D Silenz and PROPELLER MB, your exam time is shortened without compromise.

Axial T2 Silent PROPELLER
<11dB
0.8 x 0.8 x 5mm

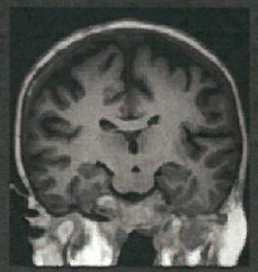


Axial T2 FLAIR Silent
PROPELLER <11dB
0.9 x 0.9 x 5mm



Axial DWI Silent
PROPELLER <11dB
2.1 x 2.1 x 5mm

Coronal T2 Silent
PROPELLER <11dB
0.8 x 0.8 x 4mm



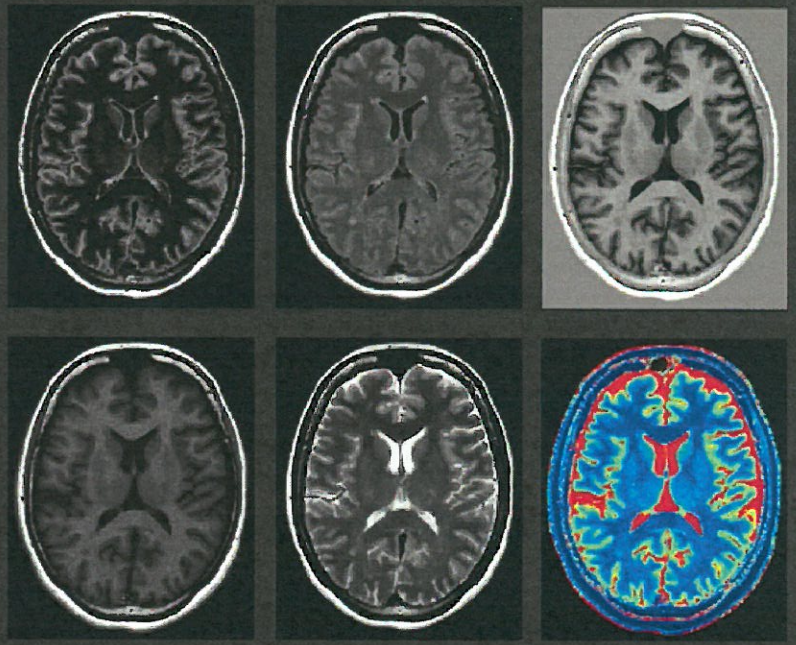
Coronal Reformat
(Sagittal T1 Silenz <3dB)
1.2 x 1.2 x 1.2mm

Sagittal T2 PROPELLER
FatSat Silent

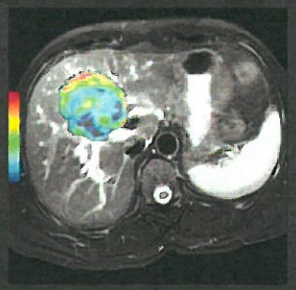
ImageWorks

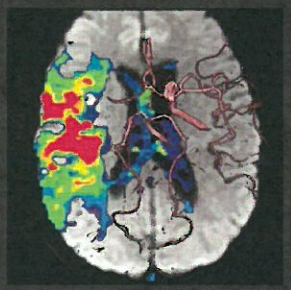
MAGiC

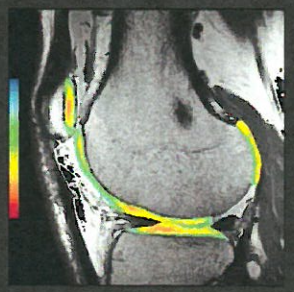
The secret of MAGiC lies in its unique ability to make possible multiple image contrasts in a single neuro scan. MAGiC delivers enhanced clinical flexibility by freeing up time for advanced imaging. MAGiC goes beyond the routine, providing complementary parametric data for a more complete picture. Image contrast can be changed by applying simple adjustments after acquisition.



DIR, FLAIR, PSIR (top), T1, T2, and T1 map (bottom) were acquired in one scan in about 5 minutes.

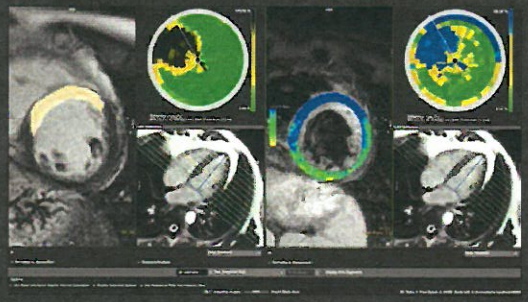


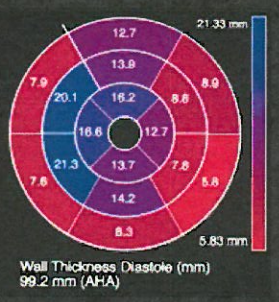




READYView

READYView helps simplify complex exams by providing a visualization platform that gives you access to advanced post processing technology. With READYView being directly available on the MR operator console, it accelerates workflow and reading readiness by eliminating time consuming post processing steps.



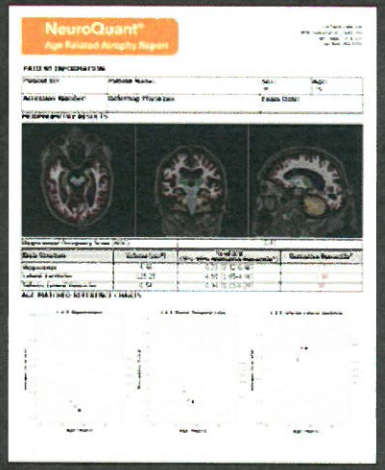


cmr^{42}

cmr^{42} is a comprehensive cardiovascular post processing solution that uses automated algorithms to assess tissue characterization, mapping, flow and function.

NeuroQuant

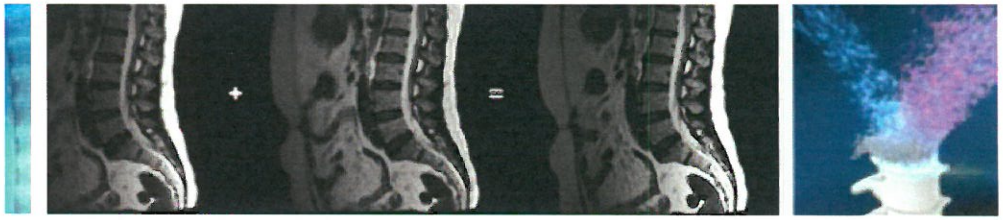
NeuroQuant automatically segments and measures volumes of brain structures and compares these volumes to norms. This information helps make a diagnosis and follow the progression of a disease. NeuroQuant can provide reports for a variety of clinical impressions, including Age Related Atrophy, Hippocampal Volume Asymmetry, Multi-Structure Atrophy, Triage Brain Atrophy, Brain Development and General Morphometry.



Elevate

Raise your MR performance to new heights with groundbreaking technology.

The SIGNA™ Artist is designed to overcome barriers that held you back. The cutting-edge platform makes it the most versatile, adaptable and powerful 1.5T system available from GE to date. Now, feet-first, whole body coverage is made easy. Dynamic yet insightful, the SIGNA™ Artist is MR built to work for you, not the other way around.

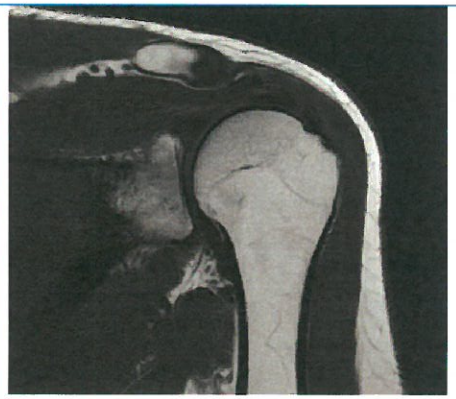


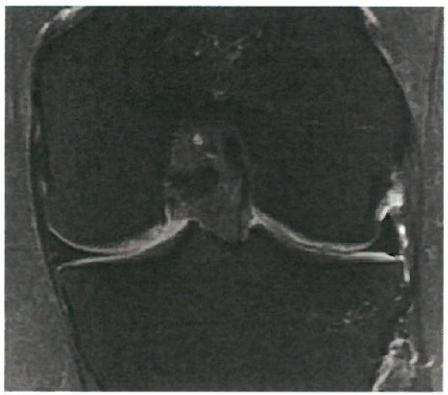
Total Digital Imaging (TDI)

The SIGNA™ Artist offers startling advances in imaging and a total imaging win with TDI.

GE's **Direct Digital Interface (DDI)** employs an independent analog-to-digital converter to digitize inputs from each of up to 128 RF channels, eliminating unnecessary noise enhancement. In other words, every element translates to a digitized signal. The result? Not only does DDI technology improve the SNR of our images but it also works with legacy GE coils for unmatched flexibility.

Digital Micro Switching (DMS) technology represents a revolutionary advance in RF coil design by replacing analog blocking circuits with intelligent Micro Electro-Mechanical Switches (MEMS). The result? Coil design supports ultrafast coil switching times for further expansion of zero TE imaging capabilities and reduced power consumption.





16 Channel Shoulder and T/R Knee Coils

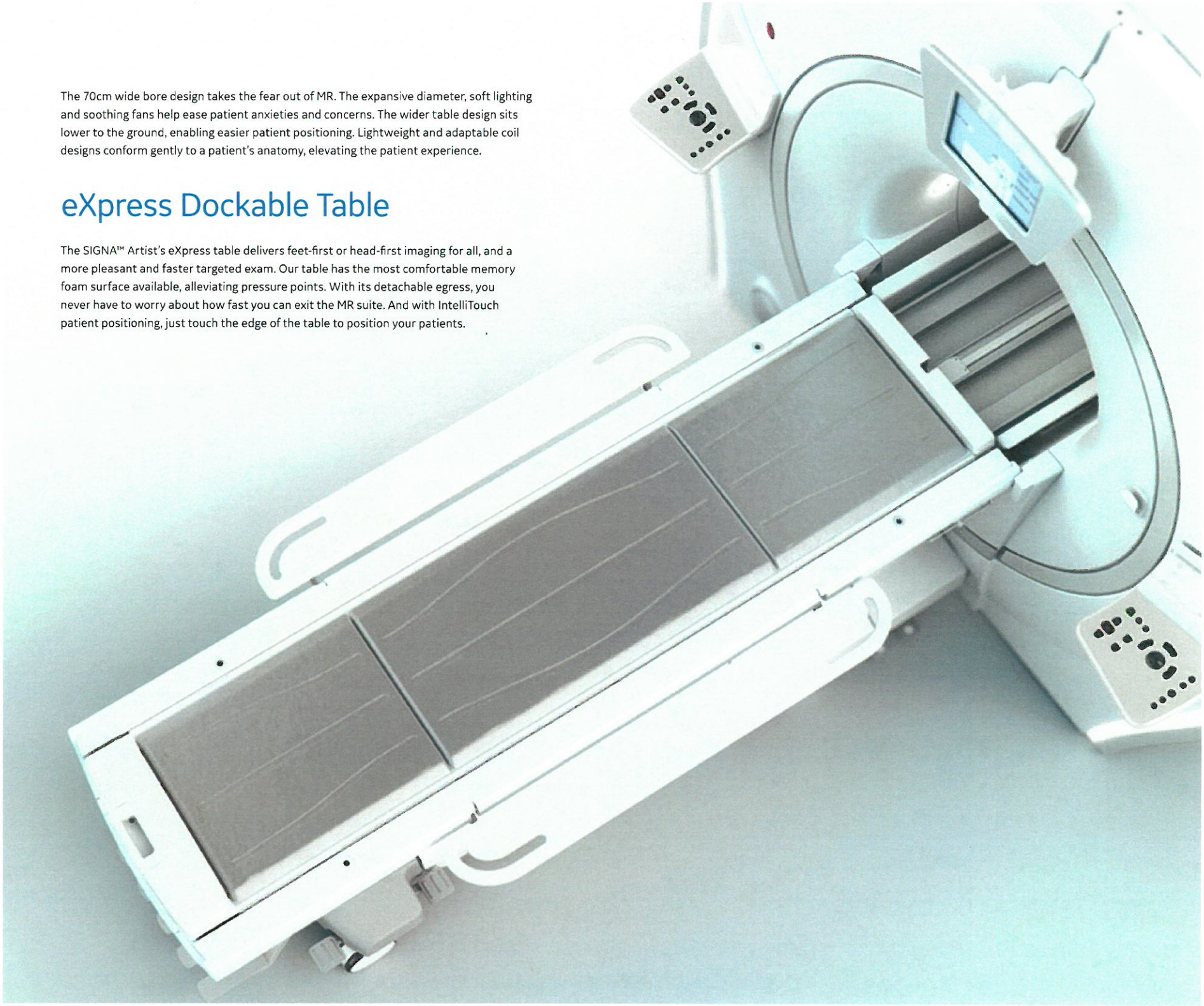
The 16 channel shoulder coil is a novel anatomy-adaptive coil design that provides efficient positioning workflow and outstanding patient comfort. The flexibility of the anterior paddle makes it possible to get closer to the patient to maximize SNR and improve imaging outcomes.

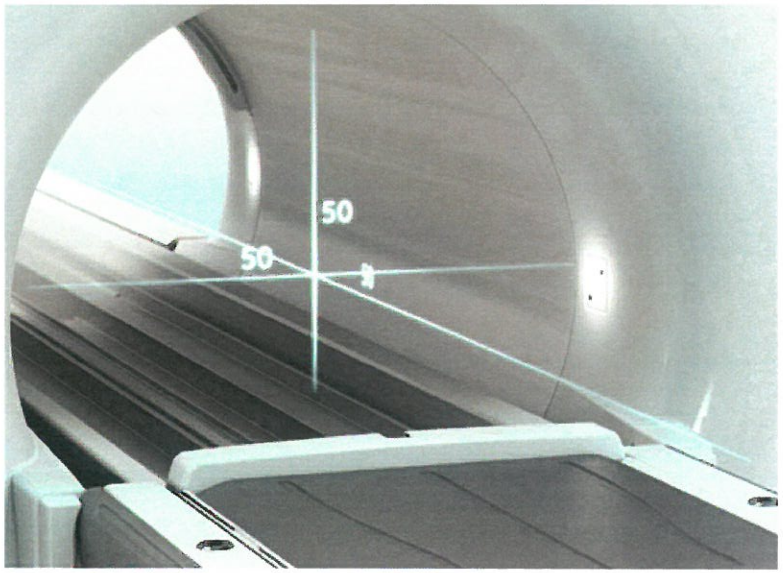
The 16 channel transmit/receive (T/R) knee coil delivers high-resolution knee imaging. The T/R design provides improved B_1 performance with the potential for higher resolution results, lower SAR and elimination of image backfolding. The larger diameter accommodates a wider range of patients and allows for simplified patient setup and higher patient comfort. The new design supports image acceleration in all directions for faster and enhanced clinical outcomes.

The 70cm wide bore design takes the fear out of MR. The expansive diameter, soft lighting and soothing fans help ease patient anxieties and concerns. The wider table design sits lower to the ground, enabling easier patient positioning. Lightweight and adaptable coil designs conform gently to a patient's anatomy, elevating the patient experience.

eXpress Dockable Table

The SIGNA™ Artist's eXpress table delivers feet-first or head-first imaging for all, and a more pleasant and faster targeted exam. Our table has the most comfortable memory foam surface available, alleviating pressure points. With its detachable egress, you never have to worry about how fast you can exit the MR suite. And with IntelliTouch patient positioning, just touch the edge of the table to position your patients.



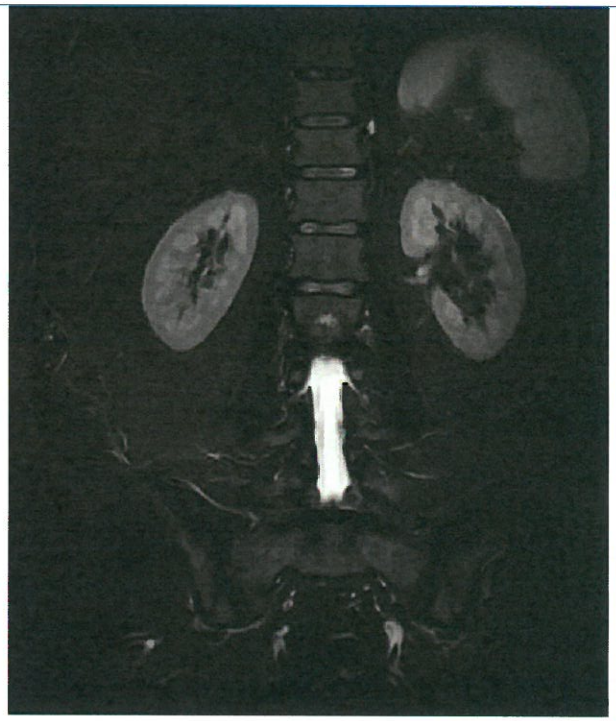


FOV

In addition to accommodating larger patients, full 50x50x50cm FOV in a 70cm wide bore allows you to properly image off-center anatomy such as shoulders and hips. The SIGNA™ Artist's phenomenal homogeneity enables our largest FOV ever, with higher gradient specifications. Additionally, excellent spatial integrity is provided by 3D GradWarp distortion correction, so no body part is left behind.

deFINE

deFINE takes the results of SIGNA™ Artist to the next level by enhancing the image appearance with integrated, in-line, optimizable settings. These settings can be generated for each individual sequence or for the entire exam. With deFINE, you meet your high quality image needs and go beyond the normal.



About GE Healthcare

GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems.

Our "healthymagination" vision for the future invites the world to join us on our journey as we continuously develop innovations focused on reducing costs, increasing access and improving quality around the world. Headquartered in the United Kingdom, GE Healthcare is a unit of General Electric Company (NYSE: GE). Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries. For more information about GE Healthcare, visit our website at www.gehealthcare.com.

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MR-0504-01.17-EN-US
JB46119US

PITT COUNTY MEMORIAL HOSPITAL

UNIVERSITY MEDICAL CENTER OF EASTERN CAROLINA-PITT COUNTY

2100 Stantonsburg Rd - P.O. Box 6028 - Greenville, NC - 27835-6028

(919) 816-4483

AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER

PURCHASE ORDER NO.: 73846

GE Medical Systems

PO Box 414
Milwaukee,WI 53201-0414

DATE : 2/10/99 DWPad
TERMS : Prepay
DEPT. : Capital Equipment 0110000016263
SHIP VIA : Cert 9901232, 8120 Radiology MRI

CONDITIONS OF PURCHASE

1. NOTE: This Order No. must appear on all Invoices, Packing Slips, Shipping Labels, and correspondence.
2. Orders are not processed or invoiced at prices higher than last quote without advance approval.
3. Cancellation of any undelivered portion of an order, if not delivered at the specified time, or if not delivered in compliance with stated regulations, is the right of Pitt County Memorial Hospital Purchasing Office.
4. Invoices should be mailed to the attention of the Accounts Payable Department c/o Pitt County Memorial Hospital, Post Office Box 6028, Greenville, North Carolina 27834.
5. All deliveries are F. O. B. Hospital unless previously arranged with the Purchasing Office.
6. Orders are delivered to the Receiving Department Monday thru Friday between the hours of 9:00 A.M. and 4:00 P.M. unless otherwise instructed.
7. All Equipment shipped on this Purchase Order must meet OSHA specifications at the time of delivery.

ITEM NO.	QUANTITY/UM	DESCRIPTION	DEPT. ACCT. CODE	RECEIVING QTY.	RECEIVING DATE REC'D	RECEIVING BY	UNIT PRICE	TOTAL AMOUNT
		GE MRI Scanner ADVANTAGE						
		see attached quote						
		-Y2K Compliance						
		-2 sets of operator, service, and applications manual						
		-12 mo. warranty with reconditioned Advantage						
		Windows Workstation.						
		-must be able to utilize multiple printing capabilities						
		of Lint network						
		~~$100,000 down with order~~ 80% due upon delivery						
		of components.						
		-Balance due paid upon Clinical Acceptance by						
		PCMH Radiology Administrator.						
		TOTAL						$2,266,610
		Fax copy to Bob Mulvaney 919-941-0100						

SHIPPING/RECEIVING FREIGHT PREPAY/ADD: | FREIGHT PREPAID: | FREIGHT COLLECT: | FREIGHT BILL NO.: | CARRIER: | DATE COMPLETED: 1/1

BUYER: Darnell Peters | PURCHASING AGENT: Ellen Stell James

FORM NO. 0160

VENDOR

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Charge to Account Number:	INVOICE NO	BS/OCP	Invoice Date	AMOUNT DUE
	06485401	0010830	2000-MAR-16	1,813,288.00

SOLD TO: BILLING ACCT # 330688820
PITT COUNTY MEMORIAL HOSP/UHC
2100 STANTONSBURG ROAD
PO BOX 6028
GREENVILLE NC 27834

SHIP TO:
PITT COUNTY MEMORIAL HOSP/UHC
2100 STANTONSBURG ROAD
PO# 73846/MRI DEPT/GE REP
GREENVILLE NC 27834

0003306888200648540100181328800001813288000010830000013

To ensure proper credit - Detach and return above portion with payment

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Medical Systems

INVOICE NO.	BS/OCP	Invoice Date	AMOUNT DUE
06485401	0010830	2000-MAR-16	1,813,288.00

PAYMENT TERMS	PURCHASE ORDER NO.	INVOICE INQUIRIES	Svc Loc	page
80% DEL.-20% INST.	PO# 73846	800-581-5600	0330	1

Original GE Reference	Bus	Sales Rep		Date Shipped	Transportation Terms		
	01	5898	12-0012	2000-03-16	DEST PREPAID	TC19	P

Quantity	GE Identifier	Description	Extended Amount
		THE MAJOR COMPONENTS OF YOUR ORDER HAVE BEEN DELIVERED, THIS INVOICE AMOUNT IS NOW DUE AND PAYABLE	
1	M1060LA	1.5T CXK4 FIX MAG W/ENCL	
1	M1060JW	1.5T/1.0T SUMITOMO COMPR	
1	M1085KC	60HZ WIDEOPEN CHILLER	
1	M1043PS	1.5T CXK4 FIXED W/PA	
1	M1085BG	1.5T BRM-F - CXK4	
1	M1000NZ	COLOR FLAT PANEL MONITOR	
1	M1090RW	LX BAM MEMORY 128MB	
1	M1090LP	LX ECHOPLUS SW	
1	M1000MN	LX ENGLISH KEYBOARD	
1	M1000MW	LX WIDE TABLE FOR M1000M	
1	M1000MJ	LX ANALOG DASM	
1	M1085GA	1.5T 3" COIL-UFI COMPATI	
1	M1085GA	1.5T 3" COIL-UFI COMPATI	
1	M1085GR	1.5T GP FLX-UFI COMPATIB	
1	M1085GR	1.5T GP FLX-UFI COMPATIB	
1	M1087DA	SIG 1.5T DUAL ARRAY ADPT	
1	E8801CA	EYE/EAR SURFACE COIL HDR	
1	E8802F	TMJ-200 DEVICE BY MEDRAD	
1	E8819P	MR PULSE OXIMETER, 110V	
1	E8822LH	MR GENESIS II EARTIPS	
1	E8814AA	WATEC CLOSED CIRCUIT CAM	
1	E8812AN	CCTV INSTALLATION KIT	
1	E8812JA	MR ZOOM LENS	
1	E8812AD	SHIELDED BOX	
1	E8812AK	SHIELD BOX PARTS KIT	
1	E8812EC	PANASONIC 13" COLOR MONT	
1	NW8107A	SMR200 SPECTRIS INJECTOR	
1	M1090TZ	VCR INTERFACE LXW/OCTANE	
1	E8823LA	MR SIGNA GENESIS III	
1	M1090TL	SECOND PATIENT TABLE	
1	M1087TB	SIGNA HORIZON 1.5T TORSO	
1	NL538	F247 GS CAT AW2	
1	NW8802AP	QWH-63-PA HAND/WRIST COI	
1	M1000NY	MR INSITE MODEM	
1	M1087PW	1.5T PERP VASC ARRAY COI	
1	M1087CY	1.5T PREAMP KIT	
2	M1099AD	4 DAYS OF APPS TRAINING	
1	M1099CK	INTRO.-GE MR FULL SERVIC	

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2100 STANTONSBURG ROAD
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PO# 73846/MRI DEPT/GE REP
GREENVILLE NC 27834

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PAYMENT TERMS	PURCHASE ORDER NO.	INVOICE INQUIRIES	Svc Loc	page
80% DEL.-20% INST.	PO# 73846	800-581-5600	0330	2

Original GE Reference	Bus	Sales Rep		Date Shipped	Transportation Terms		
	01	5898	12-0012	2000-03-16	DEST PREPAID	TC19	P

Quantity	GE Identifier	Description	Extended Amount
1	M1000RM	REFLEX50 ARRAY PROCESSOR	
2	M1099MD	CLINICIAN TRAINING VOUCH	
1	M1000ZJ	1.5T SIGNA MR/I ECHOSPEE	
1	M1033JL	LXTOOLS	
1	M1033JF	SCANTOOLS2000	
1	M1033JK	FUNCTOOL2000 FOR LX	
1	M1087N	1.5T NEUROVASCULAR ARRAY	
1	M1087SP	1.5T CTL SPINE ARRAY COI	
1	M1085E	1.5T QUAD EXTREMITY COIL	
1	M1087SD	1.5T SHOULDER ARRAY COIL	
1	M1087BT	1.5T OPEN BREAST COIL	
1	M1033JB	SMARTPREP2000 SW	
1	M1033JD	PROBE2000 SW	
1	NL160	MR5726, 100' OW CABLES	
1	E8812BG	PEERLESS CMR 410 MOUNT	
	TAX IF APPLICABLE WILL BE BILLED ON FINAL INVOICE		

3/29/00
✓ Ok to pay
Tom Wood

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TOTAL AMOUNT BILLED 1,813,288.00

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	06485402	0010830	2000-MAR-22	595,318.60

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GREENVILLE NC 27834

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2100 STANTONSBURG ROAD
PO# 73846/MRI DEPT/GE REP
GREENVILLE NC 27834

0003306888200648540200059531860000595318600010830000012

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06485402	0010830	2000-MAR-22	595,318.60

PAYMENT TERMS	PURCHASE ORDER NO.	INVOICE INQUIRIES	Svc Loc	page
80% DEL.-20% INST.	PO# 73846	800-581-5600	0330	1

Original GE Reference	Bus	Sales Rep		Date Shipped	Transportation Terms		
	01	5898	12-0027	2000-03-22	DEST PREPAID	TC19	P

Quantity	GE Identifier	Description	Extended Amount
		THE EQUIPMENT HAS BEEN INSTALLED	
		THIS INVOICE AMOUNT IS NOW DUE AND PAYABLE	
1	M1060LA	1.5T CXK4 FIX MAG W/ENCL	
1	M1060JW	1.5T/1.0T SUMITOMO COMPR	
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1	M1090LP	LX ECHOPLUS SW	
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1	M1000MW	LX WIDE TABLE FOR M1000M	
1	M1000MJ	LX ANALOG DASM	
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1	E8802F	TMJ-200 DEVICE BY MEDRAD	
1	E8819P	MR PULSE OXIMETER, 110V	
1	E8822LH	MR GENESIS II EARTIPS	
1	E8814AA	WATEC CLOSED CIRCUIT CAM	
1	E8812AN	CCTV INSTALLATION KIT	
1	E8812JA	MR ZOOM LENS	
1	E8812AD	SHIELDED BOX	
1	E8812AK	SHIELD BOX PARTS KIT	
1	E8812EC	PANASONIC 13" COLOR MONT	
1	NW8107A	SMR200 SPECTRIS INJECTOR	
1	M1090TZ	VCR INTERFACE LXW/OCTANE	
1	E8823LA	MR SIGNA GENESIS III	
1	M1090TL	SECOND PATIENT TABLE	
1	M1087TB	SIGNA HORIZON 1.5T TORSO	
1	NL538	F247 GS CAT AW2	
1	NW8802AP	QWH-63-PA HAND/WRIST COI	
1	M1000NY	MR INSITE MODEM	
1	M1087PW	1.5T PERP VASC ARRAY COI	
1	M1087CY	1.5T PREAMP KIT	
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1	M1099CK	INTRO.-GE MR FULL SERVIC	

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F1942X R4/95

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CUSTOMER INVOICE

Medical Systems

INVOICE NO.	BS/OCP	Invoice Date	AMOUNT DUE
06485402	0010830	2000-MAR-22	595,318.60

PAYMENT TERMS	PURCHASE ORDER NO.	INVOICE INQUIRIES	Svc Loc	page
80% DEL.-20% INST.	PO# 73846	800-581-5600	0330	2

Original GE Reference	Bus	Sales Rep		Date Shipped	Transportation Terms		
	01	5898	12-0027	2000-03-22	DEST PREPAID	TC19	P

Quantity	GE Identifier	Description	Extended Amount
1	M1000RM	REFLEX50 ARRAY PROCESSOR	
2	M1099MD	CLINICIAN TRAINING VOUCH	
1	M1000ZJ	1.5T SIGNA MR/I ECHOSPEE	
1	M1033JL	LXTOOLS	
1	M1033JF	SCANTOOLS2000	
1	M1033JK	FUNCTOOL2000 FOR LX	
1	M1087N	1.5T NEUROVASCULAR ARRAY	
1	M1087SP	1.5T CTL SPINE ARRAY COI	
1	M1085E	1.5T QUAD EXTREMITY COIL	
1	M1087SD	1.5T SHOULDER ARRAY COIL	
1	M1087BT	1.5T OPEN BREAST COIL	
1	M1033JB	SMARTPREP2000 SW	
1	M1033JD	PROBE2000 SW	
1	NL160	MR5726, 100' OW CABLES	
1	E8812BG	PEERLESS CMR 410 MOUNT	
	ADDITIONAL CHARGES		
	INTERIM SERVICE		
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GE Healthcare

SIGNA® 1.5T EXCITE® HD
Product Data

Powered by High Definition (HD) technology, the GE Signa® 1.5T EXCITE® HD MR System is the first MR system designed to create high definition MR images.

EXCITE HD is designed to create high definition MR images through a synergy between clinical applications and technology. The HD technology features significant advances in acquisition, gradients, and the human interface. The result of these advances is the only MR system capable of delivering high definition images for even the most challenging patients.

The EXCITE HD MR system is the product of a long line of industry firsts, featuring a detachable patient table, actively-shielded magnet, actively-shielded magnetic-field gradients, phased-array digital radiofrequency electronics, high-density coils, and EXCITE (EXpanding applications with multi-Channel Imaging TEchnology) to manage the flow of data through the MR system.

imagination at work

Table of Contents

Signa 1.5T EXCITE HD Overview

EXCITE HD Technology revolutionizes MR scanning by providing unprecedented spatial resolution, the speed to image physiological processes, and scanning strategies to minimize patient artifacts. Three unique technologies are the key: HD Acquisition, HD Gradients, and the HD Human Interface.

HD Acquisition

Built upon GE's exclusive EXCITE™ data pipeline, HD Acquisition accommodates up to 16 independent channels of data today and is capable of much more in increments of 16 channels. The unique architecture of one array-processing unit per receiver permits the simultaneous use of all coil elements, receivers, and array processors. This unique electronics makes practical the use of receiver coils with a high density of coil elements to create high definition MR images.

HD Gradients

The second key element of HD technology is the most accurate and repeatable gradients ever designed. This is critical for high image quality with echoplanar imaging, fast spin echo imaging, and complex techniques such as PROPELLER. This new capability, combined with high amplitude and slew rate, enables EXCITE HD to create MR images with a quality previously unattainable.

HD Human Interface

The HD Human Interface offers innovations to make it easier for the patient, technologist, and radiologist. It builds on the detachable patient table, which remains an industry exclusive for patient safety. The HD Coil Interface creates a secure coil connection to ensure the highest possible image quality. HD Gating improves the consistency of ECG triggering to approximately 99%. With the HD Scan Interface, which is designed around the Linux operating system, most of scan setup is accomplished on a single screen. The Scan Interface includes ProtoCopy to facilitate the development and sharing of scan protocols and take the guesswork out of scanning.

Neurological Applications

HD Technology brings high definition to neuro imaging, through HD coils and applications such as PROPELLER to overcome patient motion, Diffusion Tensor Imaging for surgical planning, BrainWave for functional studies, and proton spectroscopy with metabolite maps created in Functool. These applications bring superb image quality even with the most challenging of patients.

Cardiovascular Applications

TRICKS is the industry standard for time-resolved MRA, because of its simplicity, reliability, and inherent ability to add flow information without sacrificing spatial resolution. Fluoro-triggering and automated multi-station techniques complement TRICKS. For the heart, there is a new technique inspired by echocardiography, called MR Echo. High-resolution coronary artery imaging is feasible using 3D FatSat FIESTA. There are techniques to study myocardial evaluation, wall motion, and cardiac function. And to complete the study, ReportCARD is tailor-made to create the type of report that referring physicians expect.

Body Applications

A new HD application called LAVA (Liver Acquisition with Volume Acceleration) offers 25% better spatial resolution, 25% better coverage, all in a 25% shorter breath-hold. The high-density body array coil generates more signal-to-noise through its high density of coil elements. VIBRANT™ provides the unique capability to acquire sagittal or axial 3D images of both breasts with excellent fat saturation in the same time as it takes to image only one breast.

Orthopedic Applications

EXCITE HD brings high definition to musculoskeletal imaging. Coupled with advances in image acquisition software is the new high-density knee coil. Its unique hybrid transmit-receive phased-array design prevents wrap-around artifacts and the high density of elements affords higher signal-to-noise -- making knee imaging better than ever.

1.5T Magnet

The 1.5T EXCITE HD MR system features a short-bore superconducting magnet that creates the most homogeneous magnetic field throughout the entire imaging volume. This translates into the best image quality. The open appearance of the magnet accommodates patients without compromising image quality. And an extremely low helium consumption rate means a long time between refills.

Operating field strength	1.5 Tesla
Shim coils	18 superconducting
Magnet shielding	Active
EMI shielding factor	99%
Size (w/o enclosures) (length x width x height)	172 cm x 208 cm x 216 cm
Size (enclosures and He port) (length x width x height)	196 cm x 208 cm x 241 cm
Magnet weight (with cryogens and gradient coil)	5155 kg (11340 lbs) 5382 kg (11840 lbs) for Twin Speed
Magnet cooling	Liquid helium only
Temporal field stability	< 0.1 ppm/hr
Long-term stability	< 0.1 ppm/hr over 24 hour period
Cryogen refill period	> 3 years, depending on frequency of shimming
Boil-off rate under normal operation	<0.03 liters/hr
Fringe field (axial x radial)	5 Gauss = 4.0 m x 2.48 m 1 Gauss = 5.7 m x 3.28 m
Manufacturer	GE Healthcare

LV-RMS Homogeneity Specifications

Diameter of Spherical Volume -DSV	Specified Minimum ppm	Typical ppm
10 cm	< 0.05	< 0.025
20 cm	< 0.25	< 0.05
30 cm	< 0.50	< 0.25
40 cm	< 1.00	< 0.50
45 cm	< 1.25	< 0.63
48 cm	< 2.00	< 0.95

Large Volume Root-Mean-Square (LV– RMS) method is most rigorous with over 173,000 measurements collected over spherical volume.

V-RMS Homogeneity Specifications

Diameter of Spherical Volume -DSV	Specified Minimum ppm	Typical ppm
10 cm	< 0.02	< 0.004
20 cm	< 0.06	< 0.02
30 cm	< 0.14	< 0.06
40 cm	< 0.35	< 0.27
45 cm	< 0.97	< 0.81
48 cm	< 2.00	< 1.65

Volume Root-Mean-Square (V – RMS) method is based on 24 measurements in each of 13 planes.

High-Order Shim (TwinSpeed HD only, Optional)

In addition to the 18 super-conducting shim coils integrated into the magnet, the TwinSpeed HD model in the Signa 1.5T product line includes an optional resistive shim set, known as room temperature shims. Five 2nd order shim coils (XY, XZ, YZ, X2-Y2, and Z2) compensate for the magnetic field distortion induced by the patient. These shim coils are controlled from the operator's console through an automated shimming program. The resulting higher homogeneity translates directly into higher image quality in spectroscopy, ultra-fast imaging techniques such as Diffusion Tensor Imaging (DTI), and Diffusion-Weighted EPI, and in applications such as orthopedic imaging, in which high-quality fat saturation is critical.

Magnet Enclosure

The magnet enclosure on the Signa 1.5T EXCITE HD MR system is designed to maximize patient comfort. A patient-friendly appearance results from the Wide Open enclosures, dual-flared design, well-illuminated, well-ventilated, and short inner bore.

Patient Bore (L x W x H)	70 cm x 60 cm x 60 cm 105 cm x 60 cm x 60 cm (TwinSpeed HD)
Enclosure length	185 cm total system length
Patient positioning features	Laser alignments for axial, sagittal, and coronal reference planes Dual table top panels
Patient comfort module	Dual-flared patient bore 2 way in-bore intercom system In-bore FiberTrack lighting system Interface for music system In-bore patient ventilation system In-bore music system (optional) Look-out head coil mirror Noise reduction with Quiet Technology (TwinSpeed HD)

This magnet enclosure is designed to provide several benefits for the patient and technologist:

- Patient anxiety is eased, resulting in reduced exam time for uncooperative patients.
- Technologists have easy access to the patient.
- Dual-sided controls improve access to cables and IV lines.
- Feet-first positioning facilitates run-off studies and set-up for claustrophobic patients.
- Quiet technology on the TwinSpeed HD enhances patient comfort.

HD Acquisition

The key enabler of high-definition MR (HDMR) is a collection of electronics that receive the radio emissions from the patient, digitize these weak signals, and compute these signals into images. With the advent of advanced applications that generate an order of magnitude more data than ever before and require an order of magnitude more computational power than ever before, HD Acquisition plays a most critical role. This is even more the case with the advent of phased-array RF coils comprised of numerous independent coil elements allowing signals to be received across many independent channels in this so-called data pipeline.

EXCITE, which stands for EXpanding applications with multi-Channel Imaging TEchnology, is GE-exclusive technology for keeping the data flowing through the data pipeline. The power of EXCITE is that it integrates the three major components of the data pipeline: (1) Transmission, (2) Reception and (3) Processing. This integration enables greater clinical productivity, higher image quality, and is essential for the data-intensive advanced applications in high-definition MR.

EXCITE technology has a major impact on the transmission of the RF pulses and magnetic-field gradient pulses in the MR pulse sequences used to acquire the data for MR images. The technology enables rapid play-out of gradient pulses and RF pulses to realize the shortest TR, TE, and EPI echo-spacing, which in turn translates to faster acquisition, higher SNR, higher spatial resolution, and higher image quality.

The EXCITE data pipeline delivers the shortest echo spacing (ESP) in the industry, which enables the highest image quality on echoplanar imaging and fast spin echo sequences.

Resonance frequency	63.86 MHz
Maximum power output	21 kW
Simultaneous RF channels	16
High bandwidth receivers	16
Quadrature demodulation	Digital
RF filtering	Digital non-recursive
Noise	<0.5dB Noise Rating
Transmit bandwidth	>0.6 MHz with automatic control
Transmit amplitude dynamic	>100 dB range
Resolution	50 ns resolution
Frequency resolution	<0.6 Hz/step
Phase resolution	<0.1 degree/step
Amplitude resolution	16 bit control
RF preamplifiers	10
Preamplifier gain	36 dB
Receiver sampling bandwidth	1000 Hz to 1 MHz
Receiver dynamic range	>135 dB
Receiver signal resolution	Up to 32 bits
Instantaneous dynamic range	96 dB [16 bits]
Converter sampling resolution	16 bit
Sampling resolution alignment	50 ns

HD Gradient Subsystem

HD Gradients deliver the highest accuracy and reproducibility of any magnetic-field gradient design in the industry. This assures the highest quality imaging across all applications – especially echoplananar imaging. It also means the shortest possible repetition time (TR), echo time (TE), and echo spacing (ESP).

The Signa 1.5T EXCITE HD MR gradient family delivers a level of performance matched to a range of needs. From the HiSpeed HD to the EchoSpeed HD and TwinSpeed HD, the right configuration to realize the desired spatial and temporal resolution can be chosen. The following table presents the specifications for maximum amplitude, rise time, and slew rate.

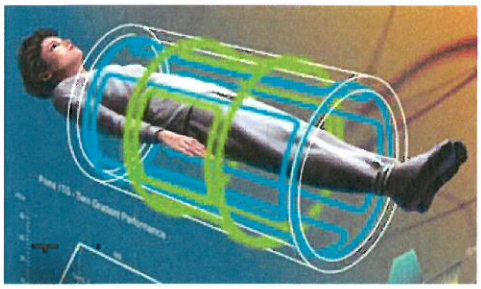
Gradient Perfor-mance	Hi Speed HD	Echo Speed HD	Twin Speed HD (Zoom)	Twin Speedm HD (Whole-Body)
Maximum Amplitude in each Orthogonal Plane (mT/m)	33	33	50	23
Rise Time to Maximum Amplitude (μsec)	428	276	267	287
Slew Rate (T/m/s)	77	120	150	77

The specifications apply separately to each of three orthogonal directions. A 70% higher maximum amplitude and slew rate are possible for oblique slices when all three gradients are activated concurrently. These impressive specifications enable extremely short values for the minimum TR, TE, and ESP, which translate to superb image quality.

The gradients are non-resonant and actively shielded to minimize eddy currents. The gradient coil and the RF body coil are integrated into a single module, which is water-cooled for maximum performance. The electronics, including the High Fidelity Gradient Driver (HFD) to power the gradient coils, are housed in a single gradient cabinet to conserve space.

TwinSpeed HD Zoom and Whole-Body Gradient Modes

The TwinSpeed HD model in the Signa 1.5T EXCITE HD product line features a gradient subsystem with two concentric sets of non-resonant gradient coils. These two sets allow two modes of operation -- Zoom and Whole Body. The availability of both modes circumvents the compromise between high amplitude and slew rate versus large field of view.



The Zoom mode offers high maximum amplitude with high slew rate while avoiding peripheral nerve stimulation. The key is to restrict the high performance to a relatively small field of view (FOV). In the diagram above, the Zoom gradient coil is the inner set shown in green. With maximum amplitude of 50 mT/m and a slew-rate of 150 T/m/sec, the Zoom mode delivers the highest possible performance for pediatric, cardiovascular, neurovascular, abdominal, and orthopedic applications -- without compromising patient safety or comfort.

The Whole-Body mode is intended for use when the FOV exceeds approximately 35 cm. Thus, the Whole-Body mode is particularly well suited for certain abdominal protocols, off-center high-resolution orthopedic imaging, and other large FOV applications.

Quiet Technology

State-of-the-art clinical imaging demands the routine use of ultra-fast imaging techniques such as DW-EPI, FRFSE, EFGRE3D, and FGRET. Such techniques tend to generate considerable acoustic noise. Quiet Technology reduces the level of acoustic noise experienced by the patient inside the magnet bore without compromising the maximum amplitude, slew rate, or duty cycle of the gradients. This means that Quiet Technology preserves image quality.

The reduction in acoustic noise is achieved through the innovative combination of a vacuum chamber and special damping material. The gradient coil is installed inside this vacuum chamber and the vacuum level is monitored with remote diagnostic equipment.

HD Scanning Parameters

Spatial Resolution Parameters

Signa 1.5T EXCITE HD MR systems are capable of creating images with superb spatial resolution. This is due in part to the EXCITE data pipeline and also to the performance of the magnetic-field gradients. The table below showcases the minimum slice thickness and minimum field of view (FOV) achievable on Signa 1.5T EXCITE HD MR systems.

Minimum slice thickness in 2D	0.5 mm
Minimum slice thickness in 3D	0.1 mm
Minimum FOV	10 mm
Maximum FOV	480 mm

Spiral Acquisition

	Hi Speed HD	Echo Speed HD	Twin Speed HD
Minimum TR (128x128 matrix)	0.76 ms	0.71 ms	0.71 ms
Minimum TE (128x128 matrix)	0.50 ms	0.46 ms	0.46 ms
Minimum Slice Thickness	1.3 mm	1.3 mm	0.7 mm
Minimum FOV	4 cm	4 cm	2 cm
Maximum FOV	48 cm	48 cm	44 cm
Maximum Samples per Arm	32,768	32,768	32,768

TR = Trajectory time * Number of arms / 128
TE = TR – (128/2) * (1/ max bandwidth)

EPI

	Hi Speed HD	Echo Speed HD	Twin Speed HD
Minimum TR (64x64 matrix)	4.0 ms	4.0 ms	4.0 ms
Minimum TR (128x128 matrix)	5.0 ms	5.0 ms	5.0 ms
Minimum TR (256x256 matrix)	6.0 ms	6.0 ms	5.0 ms
Minimum TE (64x64 matrix)	1.1 ms	1.1 ms	1.0 ms
Minimum TE (128x128 matrix)	1.3 ms	1.2 ms	1.1 ms
Minimum TE (256x256 matrix)	1.6 ms	1.6 ms	1.4 ms
Minimum Slice Thickness	1.9 mm	1.9 mm	1.6 mm
Minimum FOV	4 cm	4 cm	4 cm
ESP at 99 cm FOV (64x64 matrix)	0.300 ms	0.252 ms	0.216 ms
ESP at 99 cm FOV (128x128 matrix)	0.408 ms	0.344 ms	0.320 ms
ESP at 99 cm FOV (256x256 matrix)	0.596 ms	0.580 ms	0.596 ms
ESP at 25 cm FOV (64x64 matrix)	0.564 ms	0.456 ms	0.412 ms
ESP at 25 cm FOV (128x128 matrix)	0.796 ms	0.660 ms	0.632 ms
ESP at 25 cm FOV (256x256 matrix)	1.16 ms	1.03 ms	0.964 ms
Minimum shots	1	1	1
Maximum b Value	4,000 s/mm^2	7,000 s/mm^2	10,000 s/mm^2
Images per second (64x64 matrix)	30	33	35
Images per second (128x128 matrix)	19	21	22
Images per second (256x256 matrix)	6	6	9
Maximum Diffusion Tensor Directions	N/a	55	55
Maximum Echo Train Length	512	512	512

2D Fast Gradient Echo

	Hi Speed HD	Echo Speed HD	Twin Speed HD
Minimum TR (128x128 matrix)	2.5 ms	2.3 ms	2.3 ms
Minimum TR (256x256 matrix)	3.0 ms	2.8 ms	2.7 ms
Minimum TE (128x128 matrix)	0.9 ms	0.9 ms	0.8 ms
Minimum TE (256x256 matrix)	1.1 ms	1.0 ms	1.0 ms
Minimum Slice Thickness	0.7 mm	0.7 mm	0.5 mm
Minimum FOV	1 cm	1 cm	1 cm
Maximum FOV	48 cm	48 cm	44 cm
Maximum Echo Train Length	12	12	12

3D Fast Gradient Echo

	Hi Speed HD	Echo Speed HD	Twin Speed HD
Minimum TR (128x128 matrix)	1.3 ms	1.1 ms	0.8 ms
Minimum TR (256x256 matrix)	1.7 ms	1.6 ms	1.1 ms
Minimum TE (128x128 matrix)	0.5 ms	0.4 ms	0.3 ms
Minimum TE (256x256 matrix)	0.7 ms	0.6 ms	0.5 ms
Minimum Slice Thickness	0.1 mm	0.1 mm	0.1 mm
Minimum FOV	2 cm	2 cm	1 cm
Maximum FOV	48 cm	48 cm	44 cm

2D Spin Echo

	Hi Speed HD	Echo Speed HD	Twin Speed HD
Minimum TR	10.0 ms	10.0 ms	7.0 ms
Minimum TE	2.5 ms	2.5 ms	2.5 ms
Minimum Slice Thickness	0.9 mm	0.9 mm	0.5 mm
Minimum FOV	1 cm	1 cm	1 cm
Maximum FOV	48 cm	48 cm	44 cm

Fast Spin Echo

	Hi Speed HD	Echo Speed HD	Twin Speed HD
Minimum TR (128x128)	10.0 ms	10.0 ms	10.0 ms
Minimum TR (256x256)	11.0 ms	10.0 ms	10.0 ms
Minimum TE (128x128)	2.5 ms	2.5 ms	2.5 ms
Minimum TE (256x256)	2.6 ms	2.5 ms	2.5 ms
Minimum Slice Thickness (2D)	0.8 mm	0.8 mm	0.6 mm
Minimum Slice Thickness (3D)	0.3 mm	0.3 mm	0.3 mm
Minimum FOV	1 cm	1 cm	1 cm
Maximum FOV	48 cm	48 cm	44 cm
Minimum Echo Spacing (128x128)	2.5 ms	2.5 ms	2.5 ms
Minimum Echo Spacing (256x256)	2.6 ms	2.5 ms	2.5 ms
Minimum Shots	1	1	1
Maximum Echo Train Length for SSFSE	262	262	262

Note: Optional software packages may be required to achieve certain specifications above.

Patient Table and Transport

The Signa 1.5T EXCITE HD System includes a detachable patient table that provides maximum patient comfort and is a natural safety consideration for MR imaging. In those instances where emergency evacuation is required, patients can be transported from the magnet room in under 30 seconds, obviating the need for 1.5T-compatible emergency equipment.

Easily docked and undocked by a single operator, the patient table is easy to transport to and from the room during patient preparation procedures. This becomes a vital feature when dealing with sick or uncooperative patients. This unique capability of the Signa MR table also makes it ideally suited for multi-station exams with no scan room intervention, such as peripheral vascular (run-off) imaging.

An additional optional table can provide significant improvement in site productivity by enabling positioning of the next patient outside the magnet room while the current patient is undergoing an examination.

Table Specifications

Patient table height	68.58cm (27 inches) to 96.52 cm (38 inches) continuous
Patient table drive	Automated, power driven vertical & longitudinal
Longitudinal speed	10.26 cm/sec (fast) and 1.29 cm/sec (slow)
Vertical speed	2.58 cm/sec (1.02 inches/sec)
Total cradle length	210.8 cm (83 inches)
Total cradle travel	244cm (96.25 inches)
Positioning accuracy	+/- 0.05 cm (+/- 0.0019 inches)
Maximum patient weight for scanning	159 kg (350 lbs)
Maximum weight for patient guardrails	113.4 kg (250 lbs)
Patient transport accessories	Self storing non-ferrous IV pole Positioning pads Immobilization straps Table pad and Head Coil accessory
Compatibility	Also compatible with Signa 3.0T systems.

HD RF Coils and Arrays

High-density arrays that focus coil elements around the anatomy of interest, while proving extended coverage where needed, ensure optimal image quality for every procedure. The open and flexible RF architecture of the Signa 1.5T EXCITE HD system also facilitates access to coils developed by other vendors. These attributes lead to the best possible coil for each clinical application and also ensure a steady supply of new coils in the future.

The coils listed below are commercially available at the time of printing. Please contact your local GE sales representative for the most current list.

Two coils are standard on the Signa 1.5T EXCITE HD MR System:

- Quadrature Transmit and Receive Head Coil
- Quadrature Transmit and Receive Body Coil integrated with the gradient coil.

There are many optional receiver coils available to configure a Signa 1.5T EXCITE HD MR system to meet specific applications requirements.

Standard Coils with each MR System

Transmit / Receive Head Coil

16-rung quadrature birdcage
Patient-friendly split-top design
28 cm diameter x 38 cm length
Head and Brain
Extremities
Pediatric imaging

Transmit / Receive Body Coil

Fully integrated
32-rung quadrature birdcage
60 cm inner diameter
Up to 48 cm FOV
General applications

Coils for Neurological Applications (Optional)

HD Neurovascular Array
(available in Q2'05)

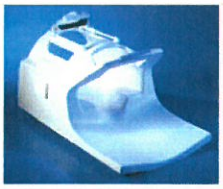
12-element phased-array coil
Highest SNR in head
ASSET optimized
Extensive coverage & uniformity
Higher productivity without repositioning
Carotids, soft tissue neck, Cervical spine, brain

8-Channel Neurovascular Array

13-element phased-array coil
High SNR in head
ASSET optimized
Higher productivity with head and neck imaging without repositioning
Up to 40 cm FOV without repositioning patient or coil
Carotids, soft tissue neck, cervical spine, brain

8-Channel Brain Array

8-element phased-array coil
Patient friendly open design
Head and Brain
Pediatric imaging
MRA
Ankles and Feet



4-Channel Neurovascular Array

Extensive coverage & uniformity
Up to 44 cm FOV without repositioning patient or coil
Carotids, soft tissue neck, cervical spine, brain
MRA from aortic arch to circle of Willis

8-Channel CTL Spine Array

- 12-element phased-array coil
- High SNR, high uniformity, and extensive coverage
- Feet-first or head-first positioning
- High productivity for multi-station exams
- Built-in volume neck coil
- Conforms to curvature of spine
- 75-cm (29.5-in) in S-I direction for whole spine coverage

4-Channel CTL Spine Array

- 6-element quadrature phased-array receive coil
- High productivity for multi-station exams
- Built-in volume neck coil
- Conforms to curvature of spine
- 75-cm (29.5-in) in S-I direction for coverage of entire spine

Anterior Neck Coil

- Single-element receive-only coil
- Conforms to anterior portion of neck and upper chest
- 30 cm S/I coverage
- Soft tissue neck, pharynx, carotids

Coils for Body Applications (Optional)

8-Channel Body Array

- 12-element coil
- Very high SNR
- ASSET optimized
- Extensive longitudinal coverage of 50 cm (20 in) for imaging of abdomen and pelvis without repositioning

4-Channel Torso Array

- 4-element phased-array coil
- ASSET compatible
- S/I coverage of 32 cm (12.5 in); R/L coverage of 34 cm (13.4in)
- Flexible and light

HD Breast Array
(available in Q2'05)

- 8-element phased-array coil
- Optimized for VIBRANT
- High SNR and uniformity
- Open design
- Single breast Imaging
- Bilateral breast imaging
- Biopsy using immobilization device available elsewhere

4-Channel Breast Array

- 4-element phased-array coil
- Compatible with VIBRANT
- Open design
- Single breast Imaging
- Bilateral breast imaging
- Biopsy using immobilization device available elsewhere

Auto Tune Device

- ATD-T Allows combination of Endorectal coil with 4-Channel Torso Array
- Prostate imaging and spectroscopy

Endorectal Coil

- 5 disposable units per package
- Can be combined with Torso Array using ATD-T and Pelvic Array using ATD-III
- Prostate imaging and spectroscopy, rectum, and cervix

Coils for Cardiovascular Applications (Optional)

8-Channel Cardiac Array

- 8-element phased-array coil
- High SNR
- ASSET optimized, even for double-oblique slices
- Open design for comfort and greater access to ECG leads
- Extensive coverage of 30 cm in S/I and R/L directions
- Whole heart imaging, coronary arteries, thorax, and abdomen

4-Channel Cardiac Array

- 4-element phased-array coil
- Whole-heart coverage
- Whole heart imaging, coronary arteries, thorax, and abdomen

HD Lower Leg Array
(available in Q2'05)

- 32-element phased array coil
- Approximately 15 times higher SNR than body coil
- High resolution MR angiography of peripheral vasculature

Coils for Orthopedic Applications (Optional)

HD Knee Array
(available in Q2'05)

- Transmit / receive phased-array coil
- High density of coil elements delivers highest possible SNR for knee imaging

Quad Lower Extremity Coil

- birdcage coil
- Unique "chimney" design adds versatility for ankle and foot imaging
- Sensitive volume covers 22 cm FOV for knee imaging and 28 cm FOV for foot imaging

Shoulder Phased Array

- Higher SNR than linear or quadrature coils
- Unique sleeve design
- Comprehensive shoulder imaging
- Humeral head and neck, rotator cuff, glenoid labrum, acromium process, and glenohumeral articular surfaces

Wrist Array Coil

- 4-channel phased array coil
- High SNR to enable high spatial resolution images
- Position overhead or at patient's side, vertical or horizontal
- 12 cm S/I coverage
- wrist and hand

Shoulder Coil

- Single-element receive coil
- Uniform signal intensity allows for superior fat suppression and depiction of soft tissues
- Contoured for shoulder joint
- Intended for shoulder, humeral head and neck, glenoid fossa, acromion process, rotator cuff, and glenoid labrum

Dual Array Adapter

- Allows two receive-only non-phased array coils to be combined
- Allows extension of FOV through use of two coils
- Intended for simultaneous imaging of anatomical sites with bilateral symmetry, including TMJ, hip, wrists, ankles, and neck

Dual Array Package

- Combined capability of 3-inch Coil and Flex Coil
- Includes Dual Coil combiner, TMJ Positioning Device, Two 7.5 cm (3 inch) Coils, Two General Purpose Flex Coils, Eye/TMJ/IAC surface coil positioning device
- Intended for bilateral imaging -- TMJ, IAC, and orbits

TMJ Kit

- Combined capability of 7.5 cm (3-inch) coils
- Package includes Dual Coil Combiner, TMJ Positioning Device, Two 7.5 cm (3 inch) Coils, Eye/TMJ/IAC surface coil positioning device
- Intended for bilateral imaging – TMJ, IAC, and orbits

Dual Coil Accessory

- Capability to combine two receive-only non-phased array coils (not included)
- Package includes Dual Coil Combiner, TMJ Positioning Device, and Eye/TMJ/IAC surface coil positioning device
- Intended for bilateral imaging

3-inch General Purpose Circular Coil

- Single-element receive-only coil
- High SNR over small FOV
- 7.5 cm (3 inches) in diameter
- Can be combined with a similar coil using Dual Array Adapter for bilateral imaging
- Intended for orbits, ankle, internal auditory canal, wrist, and small structures

5-inch General Purpose Circular Coil

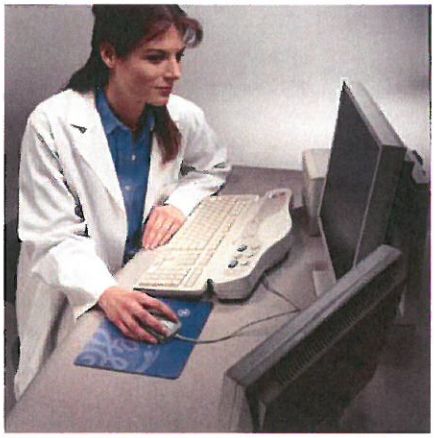
- Single-element receive-only coil
- High SNR over moderate FOV
- 12.5 cm (5 inches) in diameter
- Can be combined with a similar coil using Dual Array Adapter for bilateral imaging
- Intended for medium-sized anatomical structures

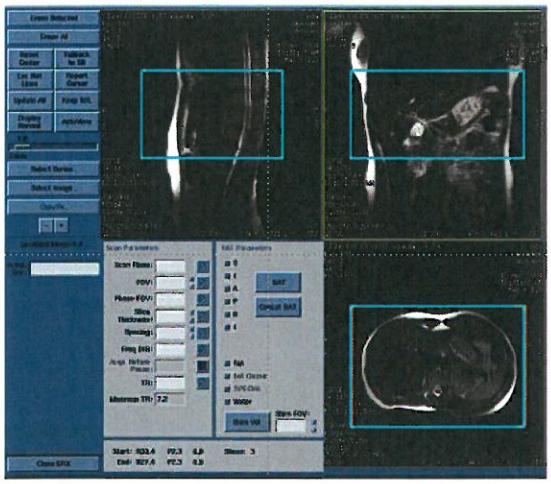
General Purpose Flex Coil

- Single-element, receive-only coil
- Versatile
- Coil wraps around anatomy of interest
- Intended for hip, shoulder, brachial plexus, large knee, ankle, thigh, elbow, and neck

HD Human Interface

Designed to lighten the workload of the operator, the 1.5T Signa EXCITE HD computer platform is built upon a parallel, multiprocessor design that delivers the simultaneity and speed needed for clinical and advanced research operation. Productivity, efficiency and streamlined data management are guaranteed through simultaneous scanning, reconstruction, filming, archiving, networking and post-processing.





HD Scan Interface

The HD Scan Interface incorporates many features designed to lighten the workload of the operator, beginning with an optimized, intuitive and flexible 3-plane graphic localizer process.

Once a prescription has been made, it is easily carried through to all subsequent series with the simple click of a mouse button.

The HD Scan Interface revolutionizes scanning. Users effortlessly move between six (6) simultaneous desktops, streamlining the scanning, post-processing, filming and patient entry processes.

SmartPrescan optimizes image quality and streamlines the scanning process. Prescan once only at the start of the patient procedure, and optimized values are assigned to subsequent series. SmartPrescan also removes the guesswork, such that each series is scanned centered on the water peak, and optimized for the region of interest.

Separate databases of optimized GE protocols as well as site-authored scan protocols provide the ideal scan parameters for any procedure.

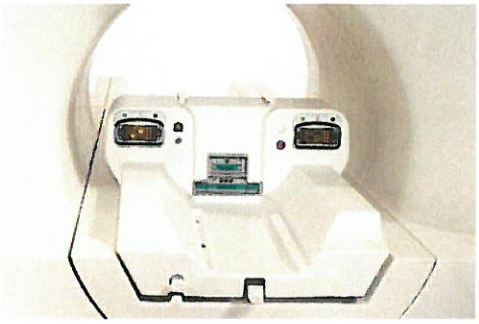
OneTouch™ filming allows the user to film an entire series, multi-image display or page with just one selection from either the screen or keyboard.

ProtoCopy

Standard on every HD system, ProtoCopy enables a complete protocol to be downloaded with the click of a mouse into the protocol base from an existing GE MR image.

HD Coil Interface

HD Technology takes the guesswork out of coil plug-in and identification by automatically identifying the coil that is connected. Through a prominent LED display on the coil connector itself, it allows the technologist to ensure a secure coil connection, every time, for every procedure.

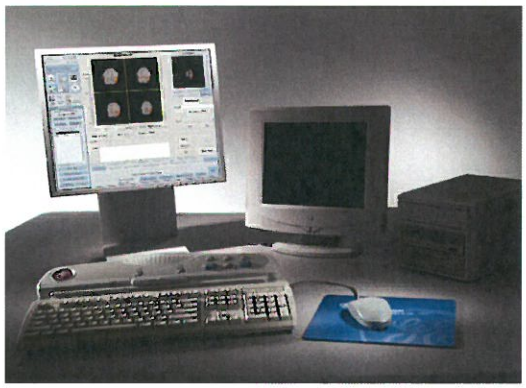


HD Gating

Standard on every HD system, HD Gating takes the guesswork out of gating with simple lead placement and a vector gating algorithm that ensures 99% gating accuracy every time, on every patient – even in the presence of a strong magnetic field.

Operator Console

The HD system comes equipped with a scan control keyboard assembly that contains intercom speaker, microphone and volume controls, and an emergency stop switch. Keyboards are available in English, Scandinavian, French, Spanish, and German – all with a 3-Button Mouse.



HD Computing Platform

Main CPU	Intel® Xeon™ Dual Processors with Hyperthreading with dual 2.66 GHz Processors AGP 8X Pro 50 Graphics 533MHz System Bus 512 KB full Speed L2 Advanced Transfer Cache
SpecMark	512 KB full Speed L2 Advanced Transfer Cache SPECfp2000 > 900 SPECint2000 > 900
Word Size	32 Bit
Host Memory	2 GB ECC DDR 266
Graphics Subsystem	Main Display: NVidia® Quadro®4 980XGL - 128 MB DDR Graphics Memory - proe-01: 21.6 - ugs-01: 20.2 - 3dsmax-01: 17.3 Waveform Display: NVidia® PCI GForce4™ MX-420 64MB
Cabinets	Single, tower configuration
Disk Subsystem	System Disk: 1-36GB, 15K RPM, Ultra 320 SCSI Data Disk: 72 GB(2-36GB), 15K RPM, Ultra 320 SCSI, Raid 0 Dual Channel Ultra 320 SCSI Controller 400,000 uncompressed 256 x 256 image files Sustained rates to 75 MB/s
Network	3 x Gigabit (10/100/1000) Ethernet Ports

HD Reconstruction

Recon-struction	Mercury Array Processors
	SVP16 array processor matched to 16-channel architecture with 4 GB memory and capable of 1700 2D FFT operations/second on 256 x 256 matrix
	SVP8 array processor matched to 8-channel architecture with 2 GB memory and capable of 850 2D FFT's/second on 256 x 256 matrix
	SVP4 array processor matched to 4-channel architecture with 1 GB memory and capable of 425 2D FFT's/second on 256 x 256 matrix
	32 bit floating point data format
	Linked to host computer via DataBlizzard high speed bus-to-bus interface, which transmits data at 72MB/sec (16 x Ethernet rate)

HD Archiving

Standard MOD drive	Maxoptix™ Erasable, rewritable media 1.3 or 2.3 GB unformatted
	Assigned to DICOM 3.0 format image file and protocol file storage/retrieval
	Stores up to 15,000 (for 1.3 GB) or 30,000 (for 2.3 GB) loss-less JPEG compressed 256 x 256 image per MOD
	Offline retrieval of image files.
DVD Interchange	SONY DRU-530A DVD-RW
	Data transfer rate 21.6MB/s
	Access speed – average random stroke approx. 200ms.

HD Filming

Filming	Drag & Drop filming
	One button Print Series
	One button Print Page
	Multi-image formats - 1:1, 2:1, 4:1, 6:1, 9:1, 12:1, 15:1, 16:1, 20:1, 25:1 and 35 mm slide
	DICOM 3.0 Basic Grayscale Print Service Class

HD Display

AutoView	256 x 256 Image Window (standard)
	512 x 512 Image Window (maximized)
Window / Level (W/L)	7 user-programmable keys on scan control keyboard plus one key for returning to prior setting
	6 user-programmable buttons in image viewer
	Arrow keys on scan control keyboard
	On-image through middle mouse button
	Save State stores user-selected image orientation and window level.
Image Display	Zoom / Roam / Flip / Rotate / Scroll
	Explicit Magnify & Magnifying Glass
	Image Measurement Tools Grid On / Off
	Cross Reference / User Annotation
	Exam / Series Page
	Hide Graphics / Erase Annotation / Screen Save
	Accelerator Command Bar
	Compare Mode / Reference Image / Image Enhance
	ClariView Image Filtering
	Smooth and Sharpen Edge Filters
	Minified Reference Scoutview
	Cine Paging (up to 4 windows and 128 images/window)
	Add/Subtract / Edit Patient Data
Image Display	256 Image buffer (256 x 256) at 30fps
Image Annota-tion	Shadowed to permit ease in reading
	Two Graphic/Text planes overlay the entire screen.
	Grid placement with anatomical reference on an image.
	Drawing and annotation may be added to and removed from images

HD Display Monitor

Display Monitor	18" Color LCD Flat Panel
	1280 x 1024 dot resolution
	Non-interlaced, flicker free presentation. Contrast ratio 300:1
	89kHz horizontal deflection frequency, 72 Hz refresh rate
	Undistorted image display for siting up to 50 Gauss

Standard Image Post Processing

Multi-Projection Volume Reconstruction (MPVR)	Quick and easy way to generate volumetric images for MR or CT Angiography without threshold data or removing unwanted anatomy.
	An entire volume is used to generate images in any plane, creating real time frames of reference at the same time.
Multi-Planar Reformation (MPR)	Provides real time assessment of anatomy in off-axis planes. Sagittal, coronal, oblique, and curved planar reformations available.
Other standard analysis features	Curved reformations
	Batch reformations
	Interactive Vascular Imaging (IVI)
	Comparison Mode
	Multi-image ROI
	3D Surface Rendering

HD ScanTools

Standard Pulse Sequences

The Signa EXCITE HD scanner comes standard with a package of pulse sequences and applications optimized for 1.5T performance.

Spin Echo	The gold standard for generating T1, proton density and T2 images
Fast Spin Echo (FSE) Fast Spin Echo-XL (FSE-XL)	These techniques use echo-train technology to reduce the time for image acquisition. T2 blurring is minimized by short echo spacing with EXCITE technology.
Fast Recovery Fast Spin Echo (FRFSE) (FRFSE-XL)	The new sequence of choice for high-quality, high-speed, and high-contrast T2-weighted imaging in neurological, body, orthopedic and pediatric applications. Compared to FSE, FRFSE allows shorter acquisition times or increased slice coverage.
Fast Recovery Fast Spin Echo (FRFSE) (FRFSE-XL)	The new sequence of choice for high-quality, high-speed, and high-contrast T2-weighted imaging in neurological, body, orthopedic and pediatric applications. Compared to FSE, FRFSE allows shorter acquisition times or increased slice coverage.
3DFRFSE	A sequence for creating high resolution three-dimensional images for MR cholangiopancreatography (MRCP) studies.
Single Shot Fast Spin Echo (SSFSE)	An ultra-fast technique that permits complete image acquisition following a single RF excitation. It can acquire slices in less than one second, making it an excellent complement to T2-weighted brain and abdominal imaging and MRCP studies.
Gradient Echo (GRE) Fast Gradient Echo (FGRE) Spoiled gradient echo (SPGR) Fast Spoiled Gradient Echo (FSPGR)	This suite of gradient-echo techniques uses short TR and TE to generate T1 or T2-weighted images in far less time than conventional SE. The ultra-short TR and TE possible with these sequences also ensure the performance needed for state-of-the-art vascular and contrast-enhanced MRA studies.
Dual Echo Gradient Echo	A vital tool for abdominal imaging. This variation on conventional gradient echo provides a pair of images for which the signals from water and fat either are in-phase or out-of-phase. By design, all of the images acquired within a single breath-hold are in perfect registration.
SPECIAL	(Spectral Inversion at Lipids) is a spectral spatial inversion technique for fat saturation in 3D FGRE pulse sequences.
T1 FLAIR T2 FLAIR	These pulse sequences have been designed expressly for neuro applications. FLAIR allows suppression of signal from CSF. In addition to this capability, T1 and T2 FLAIR add extraordinary contrast between white and gray matter to T1- and T2-weighted brain and spine imaging.
Echo-planar Imaging FLAIR Echo-planar Imaging	Essential tools for any high-throughput site employing advanced techniques. EchoPlanar imaging is what enables the rapid imaging required for such studies as functional brain mapping. And both EchoPlanar and FLAIR EchoPlanar techniques make it easier to generate neuro studies from uncooperative patients who simply refuse to stay still long enough for conventional techniques.

2D and 3D Time of Flight Imaging 2D-Gated Time of Flight Imaging	2D Time of Flight Imaging, 2D Gated Time of Flight Imaging, 3D Time of Flight Imaging and Enhanced 3DTOF Imaging are all ideal for MR angiography. Based on conventional gradient echo scanning, these time of flight (TOF) imaging techniques rely primarily on flow-related enhancements to distinguish moving from stationary spins.
2D Phase Contrast (2DPC) 3D Phase Contrast (3DPC)	These techniques demonstrate flow velocities and directional properties in vessels and other moving fluids such as cerebrospinal fluid.
Smart-Prep	SmartPrep uses a special tracking pulse sequence to monitor the MR signal through a user-prescribed volume ... to detect the arrival of an injected contrast bolus ... and to trigger the acquisition, for optimum contrast enhancement.
Double / Triple IR	These pulse sequences are included to allow black-blood imaging for studies of cardiac morphology. Triple IR adds fat suppression to black blood imaging.
FastCine	This pulse sequence is included specifically for studies of cardiac function. Through the use of retrospective gating, it allows full R-R coverage.
i-Drive Pro	i-drive Pro brings real-time interactive imaging to the MR system, making it easier to generate detailed diagnostic information on just about any anatomy. This includes organs that are subject to motion artifacts, such as spine, heart, diaphragm and GI tract. The i-Drive Pro technique allows the user to change scan parameters on the fly, during scanning– and, to evaluate the results immediately.
IVI	An interactive user interface that allows operators to remove background from MR angiography images. The result: angiographic and maximum intensity (MIP) projections in multiple scan planes. The processed images are saved automatically as a distinct series for quick recall.

FuncTool Perfor-mance	FuncTool Performance enables advanced MR-image post-processing using a wide range of sophisticated algorithms, including ADC maps and eADC maps Correlation Coefficients for mapping of motor strip and visual/auditory stimuli NEI (Negative Enhancement Integral) MTE (mean time to enhance) Positive Enhancement Integral Signal Enhancement Ratio Maximum Slope Increase Maximum Difference Function Difference Function
FuncTool Perfor-mance combined with optional software	Diffusion Tensor Post-Processing* (requires Diffusion Tensor option). The Diffusion Tensor imaging package offers basic post processing on the operator's console such as ADC, diffusion-weighted image and fractional anisotropy. The results can be displayed in a variety of user-defined formats, including time intensity curves, parametric color overlays and metabolite ratio maps. 3DCSI Post Processing* (requires PROSE option key.

Optional HD Applications

ASSET

The Array Spatial Sensitivity Encoding Technique (ASSET) is a technique to scan more rapidly – up to three times faster in certain cases. Reducing scan times is a critical consideration for patient comfort. ASSET can also be used to increase spatial or temporal resolution or to acquire more slices for the same scan time. ASSET also offers the means to minimize the RF exposure to a patient.

ASSET is compatible with the following sequences:

- 2D Fast Gradient Echo (2DFGRE)
- 2D Fast Spoiled Gradient Echo (2DFSPGR)
- 3D Fast Gradient Echo (3DFGRE)
- 3D Fast Spoiled Gradient Echo (3DFSPGR)
- 3D Time of Flight Gradient Echo (3DTOFGRE)
- 3D Time of Flight Fast Spoiled Gradient Echo (3DFSPGR)
- 2D Fast Spin Echo (2DFSE-XL)
- 2D Fast Recovery Fast Spin Echo (2DFRFSE-XL)
- 2D Fast Spin Echo Inversion Recovery (2DFSE-IR)
- 2D T1-Fluid Attenuated Inversion Recovery (T1-FLAIR)
- Single Shot Fast Spin Echo (SSFSE)
- Echoplanar imaging (EPI)
- Diffusion-weighted Echoplanar imaging (DW-EPI)
- Diffusion tensor Imaging (DTI)
- LAVA (Optional HD Body Application)
- VIBRANT

ASSET is compatible with the following receiver coils:

- 8-Channel Brain Array
- 8-Channel Neurovascular Array
- HD Neurovascular Array
- 4-Channel Torso Array
- 8-Channel Body Array
- 8-Channel Cardiac Array
- 4-Channel Breast Array
- HD Breast Array
- HD Knee Array

ConnectPro Plus

ConnectPro is software that enables the DICOM 3.0 worklist server class for the Signa Operator's Console, making it possible for the console to query the HIS/RIS by name, modality, or scheduled date, and to download patient demographics directly to the scanner. This may require separate gateway hardware to connect non-DICOM-compatible HIS/RIS systems to the MR system.

Bar Code Reader

This bar-code reader allows the download of pre-coded patient demographics directly to the scanner.

Performed Procedure Step

Performed Procedure Step (PPS) is an important step towards the filmless and paperless environment. Used in conjunction with the GE PACS broker, it automatically notifies the HIS/RIS and PACS systems of procedure status – in effect, closing the loop on the information gathered from patient arrival through to billing.

i-Drive Pro Plus

iDRIVE Pro Plus expands the capabilities of standard i-Drive Pro with:

- Geometric changes to image plane location, obliquity, rotation, center FOV and FOV size
- Contrast parameters such as spatial pre-saturation on/off, special sat pulses, flow comp and RF spoiling
- Application of a non-selective IR pulse
- Swapping phase and frequency

It starts with an intuitive point-and-click user interface and live, on-image navigation icons. It continues with click-of-the-mouse image book-marking and a suite of localization and drawing tools, and includes capabilities from 10-level undo/redo, built-in time, autoNEX and click-of-the-mouse display/review/save, all to streamline even the most complex exams and manipulations.

Neuro Applications

PROPELLER

PROPELLER is a technique derived from fast spin echo (FSE) for brain imaging and named for its unique k-space acquisition, in which data are acquired in radial "blades" that rotate similar to the propeller on an airplane until the acquisition is completed.

Since each blade passes through the center of k space, PROPELLER has unusually low sensitivity to motion artifacts and exceptionally high contrast-to-noise properties. This makes it ideal for producing high-resolution image quality even under challenging circumstances.

PROPELLER comes in 3 different flavors that deliver real clinical impact. T2 FSE PROPELLER creates T2-weighted images that are degraded much less by head motion than conventional FSE, with a 25-75%increase in contrast to noise without any time penalty. Imagine acquiring a motion-free scan, every time, and even on the most difficult of patients.

T2 FLAIR PROPELLER combines T2 FLAIR image contrast with the tolerance of motion and superb contrast-to-noise characteristic of PROPELLER.

Diffusion-weighted PROPELLER is an alternative to the more conventional technique based on echoplanar imaging, which tends to be compromised in the presence of large changes in magnetic susceptibility. Diffusion-weighted PROPELLER produces high quality images in the skull base even in the presence of dental work, craniotomies or other abnormalities that cause a magnetic field disturbance.

Diffusion Imaging (EchoPlus)

This diffusion-weighted EPI package can improve the ability to detect acute and hyper-acute stroke. It includes:

- Single Shot FLAIR EPI and Single Shot diffusion-weighted EPI with b-value up to 10,000 s/mm2
- Automatic isotropic diffusion weighted imaging
- Multi-NEX capability
- On-line image processing
- ADC maps (enabled by ScanTools)

Diffusion Tensor Imaging

This package expands EPI capability to include diffusion tensor imaging, a special technique that utilizes 6 to 55 diffusion-sensitizing gradient directions. Excellent image contrast is generated, based on the degree of diffusion anisotropy in cerebral tissues such as white matter. FuncTool capabilities on the console (included as part of ScanTools) create Fractional Anisotropy Maps (FA Maps) and Volume Ratio Anisotropy Maps (VRA Maps).

FIESTA-C

This phase-cycled FIESTA reduces sensitivity to susceptibilities that may be encountered when imaging in the posterior fossa. It provides exquisite contrast that is ideally equated for visualization of the internal auditory canal. It is also ideally suited for T2 imaging through the cervical spine.

3D FIESTA

3D FIESTA (Fast Imaging Employing STeady-state Acquisition is a technique that uses an extremely short repetition time (TR) between RF pulses such that high-resolution 3D volume images can be acquired rapidly. The 3D FIESTA technique is especially useful for the rapid acquisition of high-spatial-resolution images of static structures such as cochlea, internal auditory canal, or joints.

PROBE-P Single Voxel Spectroscopy

PROBE-P single-voxel spectroscopy permits non-invasive evaluation of the relative concentrations of in-vivo metabolites and the acquisition and display of water-suppressed hydrogen spectra localized to a single voxel. Localization is achieved through the PRESS technique, in which spatially selective RF pulses affect perpendicular slices. The software also includes special techniques to achieve the shortest possible echo time, TE. Graphic prescription of spectroscopic volumes is one of many innovations designed to facilitate preparations for data acquisition. And the package also features the automatic reconstruction of spectroscopic data.

PROBE-P and PROBE-S Single Voxel Spectroscopy

Intended for advanced spectroscopy users, this package provides the software to perform single-voxel spectroscopy through two different localization techniques, PRESS and STEAM. PRESS is generally the preferred technique, because of the associated higher SNR and shorter TE. In certain circumstances, STimulated Echo Acquisition Mode (STEAM) can provide more accurate localization and water suppression, although it has inherently lower SNR and generally a longer minimum TE compared to PRESS.

PROBE 2DCSI

Extend the capability of PROBE-P single-voxel spectroscopy to multiple voxels in a two-dimensional slice with PROBE 2DCSI. Post-processing, including the capability to create metabolite maps automatically, is enabled in the FuncTool Performance Package included in ScanTools HD.

PROBE 3DCSI

Extend the capability of PROBE-P spectroscopy to multiple voxels in a three-dimensional volume with PROBE 3DCSI. Post-processing, including the capability to create metabolite maps automatically, is enabled in the FuncTool Performance Package included in ScanTools HD.

Multi-Nuclear Spectroscopy

This package includes a powerful RF amplifier and Sage 7 post-processing software. All T/R switches and MNS coils must be purchased separately. Note that there could be a long lead-time for this package. Please contact your GE Healthcare representative to determine availability.

Sage 7 Software

SAGE 7 (Spectroscopy Analysis by General Electric, Version 7) is designed for the processing of spectroscopy data. An intuitive graphical interface offers access to a powerful toolkit of filters, transformations, correction algorithms, segmentations and quantifications. The data can be sent either to a postscript printer or exported in various formats, including BMP, EPS and GIF to JPEG, PICT and TIF.

BrainWave RT

BrainWave RT is software for real-time functional brain mapping. It allows a single operator to acquire, process and display BOLD (Blood Oxygen Level Dependent) fMRI color activation images in real-time, directly on the scanner operator console. Up to 25 frames per second of EPI imaging are supported, with these images being installed directly in the scanner database (~20,000 images/series). Multiple options for displaying 2D real-time activation images are available in order to assure patient compliance. This package may be used with "soft" paradigms with custom stimulus equipment supplied independent of GE. Captured images may be rendered in 3D with the BrainWave Post Acquisition (BrainWave PA) option.

BrainWave Post-Acquisition Package

This advanced visualization software permits rendering detailed 3D brain images displaying functional activation, from fMRI data acquired with BrainWave Real-Time. Display modes for the composite (one or more paradigms) color activation Z-maps include segmented (brain only) and unsegmented (transparent skull) modes. Additional interrogation tools permit detailed visual exploration (cut, peel, cross-reference) of activated areas on 3D rendered model.

BrainWave Hardware Lite Supplemental Paradigm Delivery

BrainWave Hardware Lite is a supplemental paradigm generation system for functional MRI, intended for use in conjunction with the BrainWave Real-Time (RT) image acquisition software on the EXCITE HD MR system. BrainWave HW Lite includes a dedicated computer workstation, equipment rack and penetration panel waveguide insert, Cedrus patient response pads, and related cabling and connectors. It is designed to deliver visual and auditory stimuli and receive a tactile response. The computer includes preset paradigms and software tools to generate custom protocols. The visual and auditory output can be coupled to fMRI delivery systems purchased separately from other vendors.

Cardiovascular Applications

TRICKS

Time Resolved Imaging of Contrast KineticS (TRICKS) technology uses intricate temporal sampling with complex data recombination to accelerate the temporal resolution of 3D dynamic imaging – without compromising spatial resolution. This technology is now integrated with Elliptical-Centric data sampling to create the ideal imaging technique for contrast-enhanced MRA of the lower extremities in even the most challenging circumstances.

Easy to set up and easy to use, TRICKS rapidly generates time-resolved 3D images of blood vessels to meet the challenge of capturing peak arterial phases with minimal venous contamination. With TRICKS, the different vascular phases can be extracted, quickly and easily, after image acquisition.

Fluoro-Triggered MRA

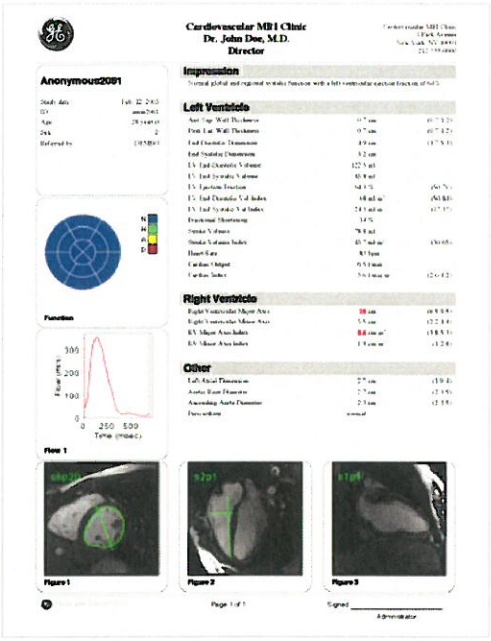
Fluoro-triggered MRA (FTMRA) is designed to If you want to capture angiographic images at the precise moment of peak opacification. Rather than automating the image-acquisition upon detection of the bolus arrival, FTMRA allows the operator to trigger each acquisition almost instantly (less than 1 second switch over), as soon as the operator is satisfied with the level of vessel enhancement. The result is an interactive, ASSET compatible, accurate approach to contrast-enhanced MRA.

MR Echo

MR Echo combines the contrast and image quality expected of MR with the real-time speed and interaction characteristic of echocardiography. It comprises a dedicated user interface, a 2D FIESTA acquisition sequence accelerated using 0.5 NEX and ASSET, and the fast processing that is integral to EXCITE HD. Images can be acquired without the need for breath holding or even ECG gating. The result is a reliable, fast functional study of heart ... even for patients with arrhythmias.

ReportCARD®

ReportCARD is a software package designed specifically for the clinical practice of cardiac MRI. It greatly facilitates the viewing and analysis of cardiac MR images and the generation of a report to communicate precisely the information requested by the referring physician – and in a familiar format. Previously available only on a standalone computer, it will be possible to install ReportCARD also on an Advantage Workstation when EXCITE HD is in full production.



Measurements are compared automatically to a predetermined set of normal values and if these measurements are outside the normal range, the corresponding fields are flagged to attract the attention of the reviewer. Apply these measurements to pre-written (and user programmable) macros, and the end result is a comprehensive cardiac report that will impress the most discerning referring physician. ReportCARD also allows the complete evaluation for patent foramen ovale through the analysis of a non-invasive, IR-prepared fast gradient echo-train sequence.

2D FIESTA Cine

Fast Imaging Employing STeady state Acquisitions is a fully balanced steady-state coherent imaging pulse sequence that has been designed to produce high SNR images at very short TR. The pulse sequence uses fully balanced gradients to re-phase the transverse magnetization at the end of each TR interval. This sequence accentuates the contrast of anatomy with high T2/T1 ratios (such as the cardiac blood pool), while suppressing the signal from tissues with low T2/T1 ratios (such as muscle and myocardium). This enhances the contrast between the myocardium and the blood pool.

3D FatSat FIESTA for Coronary Artery Imaging

3D FatSat FIESTA is software designed for imaging of the coronary arteries. The software acquires 3D images using FIESTA (Fast Imaging Employing STeady-state Acquisition). Fat suppression is applied to accentuate the coronary arteries. The use of VAST (Variable Sampling in Time) technology greatly shortens breath-holding requirements or allows for higher spatial resolution.

2D IR Prepared Gated FGRE for Myocardial Evaluation

Vital to MRI myocardial assessments, this technique can help distinguish living tissue from dead and therefore have a major impact on patient management – particularly on revascularization strategies. This pulse sequence uses an IR prepared, cardiac-gated fast gradient echo sequence to acquire images whose appearance depends on the tissue's T1 relaxation time. The IR-preparation step allows various tissues to be suppressed or enhanced. The IR prep pulse in this sequence is non-selective; i.e., it excites the entire volume inside the body coil, rather than a specific slice. That means that it can suppress both the myocardium and the blood flowing into the slice.

3D IR Prepared gated FGRE for Myocardial Evaluation

3D IR Prepared gated FGRE is an advanced tool for myocardial assessment. It uses VAST (Variable Sampling in Time) technology to acquire extensive volumes of data, rather than merely single slices, during breath holds, with acquisitions gated to the cardiac cycle. The software applies a non-selective inversion-recovery magnetization preparation step to create T1-weighted tissue contrast and suppress the signal from certain tissues.

Navigators for 3D Cardiac Imaging

This software package is designed for use in conjunction with 3D IR Prepared FGRE or 3D FatSat FIESTA for Cardiac Imaging. It consists of navigators that make it possible to track the diaphragm and use the information to acquire crisp 3D gradient-echo images of the heart even while the patient breathes.

Cardiac Tagging

Used to improve visualization of contractile function, this tagging application combines cardiac-gated FastCINE gradient-recalled echo to acquire data throughout the cardiac cycle, with spatial SAT pulses applied throughout the FOV. Using the operator's choice of diagonal stripes or a grid pattern, tagging is applied once per R-R interval immediately following the R-wave ECG trigger, just before the start of data acquisition.

Fast GRadient Echo using EPI Echo Train

This technique combines a short-TR FGRE (Fast GRadient Echo) pulse sequence with an EPI echo train to acquire multiple views, or phase encoding steps, per TR. It features uniform RF excitation, centric phase encoding, segmented k-space filling, retrospective gating in FastCARD-ET, EPI-caliber interleaving, and EPI-like acquisition of multiple views in one TR. Multi-phase FGRET is useful for applications such as multi-slice, multi-phase imaging of myocardial function.

Real Time Fast GRadient Echo using EPI Echo Train

Real Time FGRET (Fast GRadient Echo using an EPI Echo Train) uses a short TR FGRE pulse sequence with the ability to acquire multiple views, or phase-encoding steps, per TR via an EPI echo train. The result is a useful combination of gradient-echo and EPI features, such as, uniform RF excitation, centric phase encoding, segmented k-space filling, retrospective gating in FastCARD-ET, EPI-caliber interleaving, and EPI-like acquisition of multiple views in one TR. Used in conjunction with iDrive Pro Plus,

Real Time FGRET is useful for obtaining higher-resolution interactive cardiac images.

Hi-Resolution Spiral Imaging

Developed to acquire high-resolution images in less than one second, Spiral Imaging is ideally suited for imaging moving structures such as the coronary arteries. Instead of collecting data in the conventional rectilinear grid pattern, it simultaneously applies the x and y gradients in conjunction with a 2D GRE or SPGR pulse sequence, quickly gathers the data in a spiral pattern, and then interpolates the data onto a rectilinear grid for image generation. Non-gated sequences can be used with one or more slice locations; gated acquisitions can be conducted in sequential or non-sequential mode. The advantages of Spiral Imaging include faster acquisition from the more efficient k-space data collection, higher SNR from oversampling of the center of k-space, and intrinsic flow- and motion-compensation from the short echo times.

Real-Time Spiral Imaging

Developed to generate images at high temporal resolution, Real-Time Spiral Imaging is ideally suited for rapid localization of moving anatomy, such as the heart. Instead of collecting data in the conventional rectilinear grid pattern, it simultaneously applies the x and y gradients in conjunction with a 2D GRE or SPGR pulse sequence to quickly gather the data in a spiral pattern – and then interpolates the data onto a rectilinear grid for image generation.

Body Applications

LAVA (Liver Acquisition with Volume Acceleration)

LAVA is a three-dimensional (3D) spoiled gradient echo technique designed specifically to image the liver with unprecedented definition, coverage, and speed. Excellent fat suppression, through a version of the SPECIAL technique customized for the liver, is one of the reasons for the high definition of anatomical structures. The coverage and speed of LAVA are the result of short TR, innovative use of partial k-space acquisition, and ASSET with acceleration factors of up to 2.5 at 1.5T. What is the clinical benefit of LAVA? It enables the highest quality 3D MR imaging of the liver during short breath-holding periods.

FIESTA

Fast Imaging Employing STeady-state Acquisition (FIESTA) is designed to produce high SNR images extremely rapidly and with unique contrast between tissues. The contrast relies on a steady state for the transverse magnetization, which builds as a series of radiofrequency pulses and special gradient pulses are repeated after an extremely short repetition time, TR. FIESTA accentuates the signal from tissues that have a long T2 and short T1. New for FIESTA on 1.5T EXCITE HD is the capability to suppress the signal from fat, especially to create more contrast between the vasculature and surrounding tissues.

VIBRANT

VIBRANT (Volume Imaging for Breast AssessmeNT) permits high definition bilateral imaging of both breasts in the time that it normally takes to image a single breast. VIBRANT integrates ASSET technology with unique bilateral shimming and a patented fat-suppression technique developed specifically for breast imaging. This enhanced version of VIBRANT for 1.5T EXCITE HD allows the slices to be acquired in either the sagittal or axial orientation. It also provides for the automatic subtraction of pre-contrast images from post-contrast images to highlight abnormalities.

CADstream

CADstream is a package consisting of hardware and software designed to facilitate the viewing and analysis of breast MR studies. It requires an Advantage Workstation operating with version 4.2. MR images of the breast are pushed from the MR system to the CADstream server on a dedicated computer where image-processing operations are performed automatically, according to predefined templates. These operations, which require minimal effort from the radiologist, include non-rigid image registration, subtraction, parametric maps, maximum intensity projection, and multi-planar reformation. The Advantage Workstation 4.2 is used for visualization of the results. The software allows a report comprised of key findings, images, and graphs from the data analysis to be created and sent in PDF or DICOM formats. CADstream will be available when EXCITE HD is in full production.

Siting and Other Specifications

This section provides an overview of the siting requirements for a Signa 1.5T EXCITE HD MR system with a CX150 magnet. More detailed information is available on request.

Typical Room Layouts

	System Configuration Minimum Values
Magnet Room	
W x D	3.33 m x 6.00 m (10'-11.3" x 19'-4")
Minimum Ceiling Height	2.5 m (8'-2.4")
Magnet Room (TwinSpeed HD)	
W x D m	3.33 m x 6.00 m (10'-11.3" x 19'-4")
Minimum Ceiling Height	2.5 m (8'-2.4")
Equipment Room	
W x D	3.65 m x 2.74 m (12' x 9')
Control Room	
W x D	1.52 m x 2.13 m (5' x 7')

Fringe Field

	Axial	Radial
0.5 mT (5 Gauss)	4.00 m (13.12 ft.)	2.48 m (8.13 ft.)
0.1 mT (1 Gauss)	5.70 m (18.7 ft.)	3.28 m (10.76 ft.)

Installation Dimensions and Weights

	Width	Height	Weight
Magnet Assembly CX150 with K4 Technology Active Shield	212 cm (83.27 in.)	241 cm (94.96 in.)	5155 kg (11340 lbs.)
TwinSpeed HD Magnet Assembly CX150 with K4 Technology Active Shield, Quiet Technology and RF Body coil	212 cm (83.27 in.)	241 cm (94.96 in.)	5382 kg (11840 lbs.)
Patient Transport	67 cm (26.13 in.)	97 cm (37.83 in.)	286 kg (629 lbs.)
Vibroacoustic Mat (optional WIP)			231 kg (510 lbs)
Control Room Equipment			80 kg (175 lbs.)
MR Equipment			1492 kg (3282 lbs.)
MR Equipment (TwinSpeed HD)			1840 kg (4048 lbs)

Electrical Supply Requirements

Supply System	Recommended Configuration	3 phase Grounded WYE with Neutral and Ground (5 wire system) Note: Neutral must be terminated inside Main Disconnect Control.
	Alternate Configuration	3 phase DELTA with Ground (4 wire). Recommend corner Grounded Delta configuration.
Voltage	480 Vrms or 380 / 400 / 415 Vrms	
Frequency	50 ± 0.5 Hz or 60 ± 0.5 Hz (Local voltage adaptation may be required)	

Power Consumption

Power consumption depends on actual usage. The following values are an approximation. They exclude consumption by Shield Cooler Compressor (9 kVA).

Standby (no scan)	8 kVA
Standby (no scan) (TwinSpeed HD)	9 kVA
Average Power	18kVA
Continuous Sustained Power (> 5 seconds)	45 kVA
Peak Instantaneous Power (in< 5 seconds)	56.2 kVA

TwinSpeed HD System Cooling Options

System Cooling Options	Continuous Power Draw
Indoor / Outdoor Single Loop Chiller	6.2 kVA
Heat Exchanger	1.4 kVA

RF Shielding

100 db for 10 - 100 MHz planewave.

Workspace Monitor Position

	Maximum Field Strength
LCD Flat Panel Monitor	5 mT (50 Gauss)

Temperature and Humidity Requirements

	Magnet Room	Control Room	Equipment Room
Temperature	15 - 21 °C	15 - 32 °C	15 - 32 °C
Max. Temperature Change Rate	3 °C / hour	3 °C / hour	3 °C / hour
Humidity (non-condensing)	30 - 60 %	30 - 75 %	30 - 75 %

Alternative Environments

Modular buildings may also be available (including air-conditioning, heating, chiller, RF shielding, additional magnetic shielding in walls). Contact your local GE representative for GE certified designs and vendors.

Please ask your local GE sales representative for a comprehensive installation and siting manual.

Filming Considerations

Filming requires the Signa 1.5T EXCITE Analog or Digital Filming Interface (purchased separately) unless DICOM Print will be used exclusively for software filming to DICOM Print peripheral devices. An Analog/VDB or Digital/LCAM Camera Interface is typically required for most installations.

Accessory Package

- SPT Phantom Set with Storage Cart
- Customer Diagnostic Software
- Operator Manuals
- Patient Log books

Emergency Stop

Disconnects electrical power from RF and gradient components in the magnet room (duplicate control at the magnet).

Warranty

The published Company warranty in effect on the date of shipment shall apply. The Company reserves the right to make changes.

InSite™ Remote Diagnostics

GE unique remote service and applications support including magnet monitoring. Also allows downloading of applications software such as eFlex trials program.

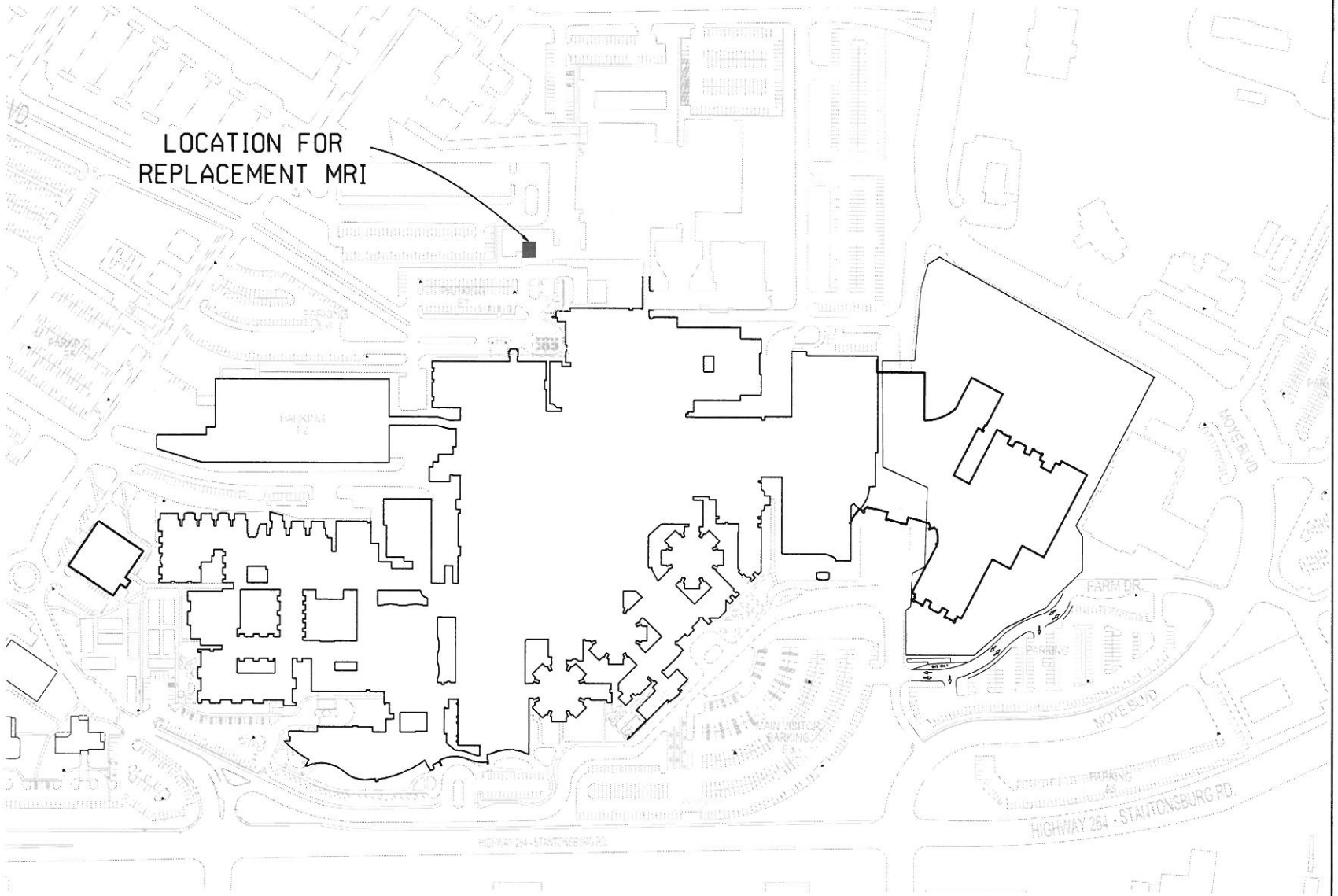
GE Regulatory Compliance

The 1.5T Signa EXCITE HD System is a CE-complaint device that satisfies Electro-Magnetic Compatibility (EMC) and Electro-Magnetic Interface (EMI) regulations, pursuant to IEC-601.

Laser alignment devices contained within this product are appropriately labeled according to the requirements of the Center for Devices and Radiological Health.

Appendix C

Current and Proposed Drawings



VIDANT HEALTH

FACILITIES + PROPERTIES

2100 STANTONSBURG ROAD
DOCTORS PARK #1C
GREENVILLE, NC 27834

(252) 847-4587 PHONE
(252) 847-8204 FAX

VIDANT MEDICAL CENTER
GREENVILLE, NORTH CAROLINA

MRI REPLACEMENT

REVISIONS

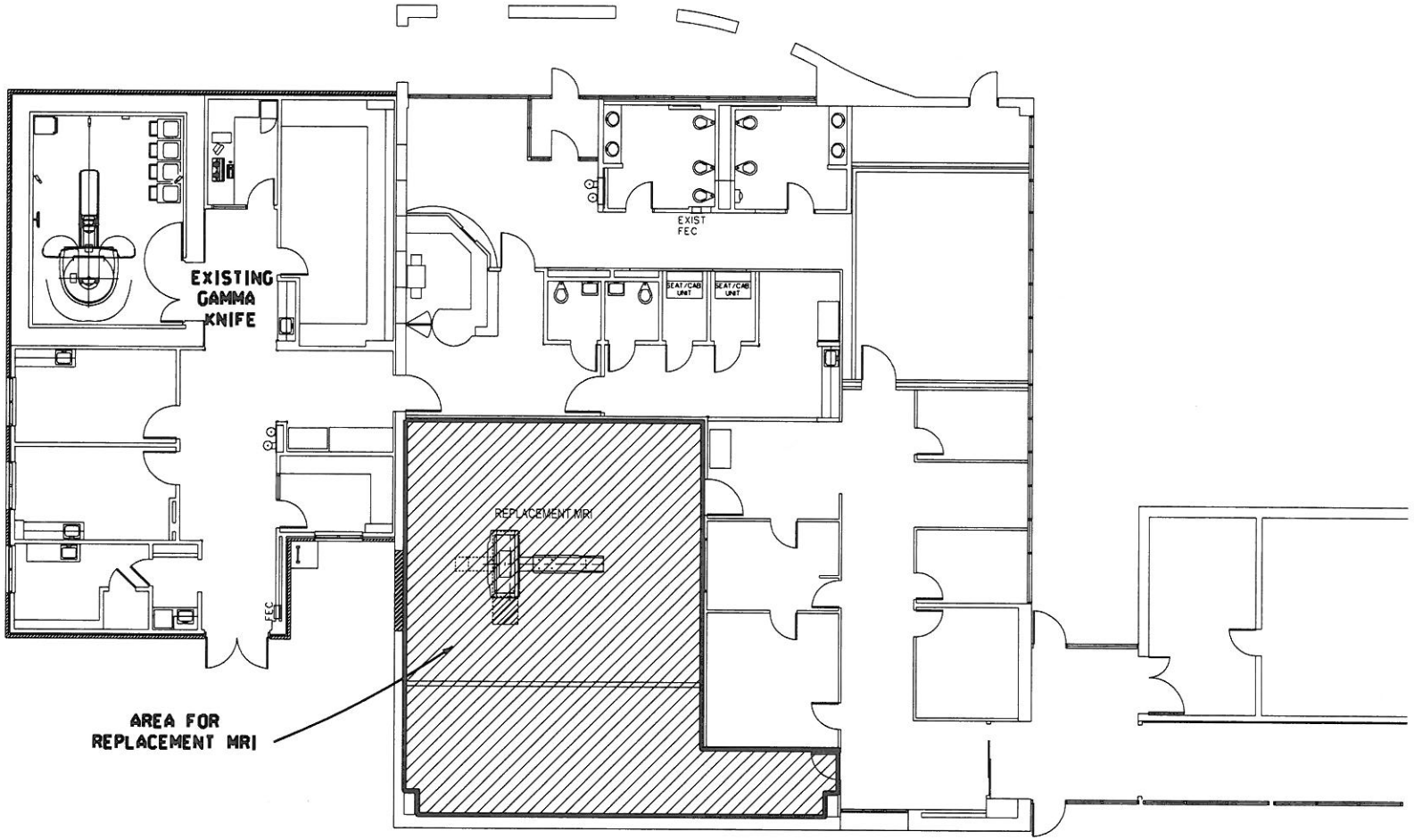
MARK	DATE	DESCRIPTION
1		

PROJECT NO.	4065
DATE	04/06/2017
DRAWN BY	CHJ

SHEET NO. 01 OF 3

C-1

LOCATION PLAN



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VIDANT MEDICAL CENTER
GREENVILLE, NORTH CAROLINA

MRI REPLACEMENT

REVISIONS

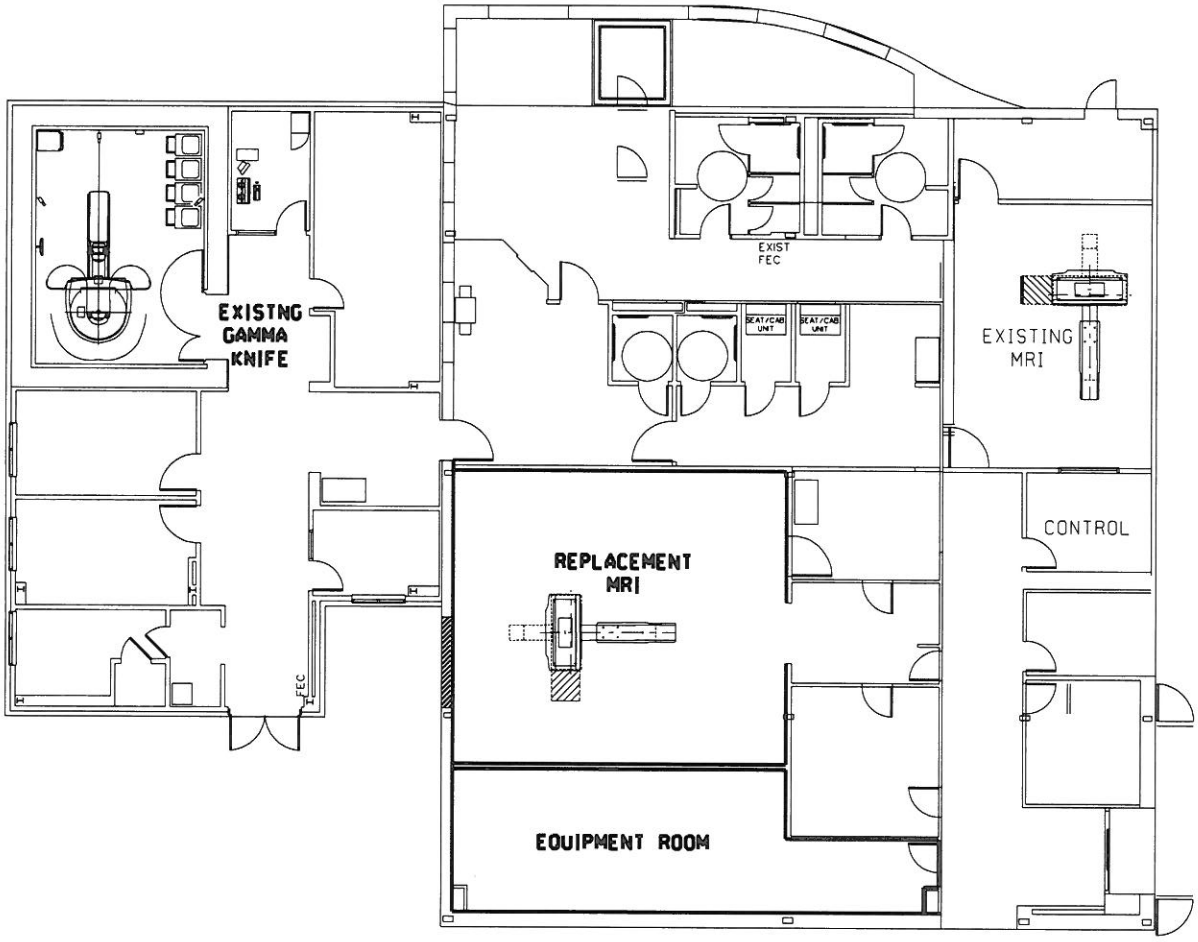
MARK	DATE	DESCRIPTION
1		

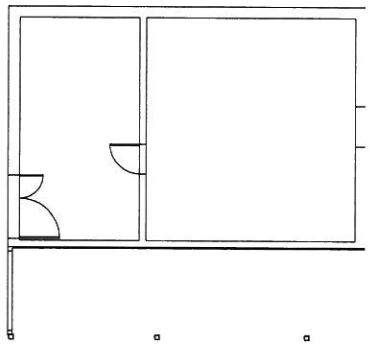
PROJECT NO.	4065
DATE	04/06/2017
DRAWN BY	CHJ

SHEET NO. 02 OF 3

A-1

AREA PLAN





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VIDANT MEDICAL CENTER

GREENVILLE, NORTH CAROLINA

MRI REPLACEMENT

REVISIONS

MARK	DATE	DESCRIPTION
1		

PROJECT NO.	4065
DATE	04/06/2017
DRAWN BY	CHJ

SHEET NO. 03 OF 3

A-2

FLOOR PLAN

Appendix D

Capital Cost Sheet

CAPITAL COST SUMMARY

Site Costs		
(1) Full purchase price of land	$ 0	
Acres 0 Price per Acre $_____		
(2) Closing costs	$ 0	
(3) Site Inspection and Survey	$ 0	
(4) Legal fees and subsoil investigation	$ 0	
(5) Site Preparation Costs [Include]		
Soil Borings		
Clearing and Grading		
Roads and Parking		
Sidewalks		
Water and Sewer		
Excavation and Backfill		
Termite Treatment		
Sub-Total Site Preparation Costs	$ 0	
(6) Other (Specify)	$ 0	
(7) Sub-Total Site Costs		$ 0
Construction Contract		
(8) Cost of Materials [Include]		
General Requirements		
Concrete/Masonry		
Woods/Doors & Windows/Finishes		
Thermal & Moisture Protection		
Equipment/Specialty Items		
Mechanical/Electrical		
Sub-Total Cost of Materials	$ 176,984	
(9) Cost of Labor	$ 265,476	
(10) Other		
(11) Sub-Total Construction Contract		$ 442,460
Miscellaneous Project Costs		
(12) Building Purchase	$ 0	
(13) Fixed Equipment Purchase/Lease	$ 2,522,560	
(14) Movable Equipment Purchase/Lease	$ 0	
(15) Furniture	$ 0	
(16) Landscaping	$ 0	
(17) Consultant Fees		
Architect and Engineering Fees	$ 57,540	
Legal Fees		
Market Analysis		
CON Preparation		
Sub-Total Consultant Fees	$ 57,540	
(18) Financing Costs (e.g. Bond, Loan, etc.)	$ 0	
(19) Interest During Construction	$ 0	
(20) Other (Specify)	$ 0	
(21) Sub-Total Miscellaneous		$ 2,580,100
(22) Total Project Capital Cost (Sum A-C above)		$ 3,022,560

Appendix E

Existing Equipment Removal Letter

GE Healthcare Technologies

GE Healthcare
PO Box 414
Milwaukee, WI 53187

March 9, 2017

Sandra Sackrison
Radiology Service Line Administrator
Vidant Medical Center
2100 Stantonsburg Road
Greenville, NC 27834-2818

RE: GE Signa HD 1.5T MRI

Dear Sandy,

Thank you for allowing General Electric Healthcare (GEHC) the opportunity to earn your business. Vidant Health is a valued customer and we truly appreciate the partnership we share.

The purpose of this letter is to inform you that General Electric Healthcare will be responsible for removing your existing GE 1.5T MRI Scanner as part of your upcoming GE Signa Artist 1.5T MRI purchase and estimate the de-installation and removal will be completed at no additional charge to Vidant Health. Vidant Health will be responsible for the cost of any scan room construction/renovation, clearing the rig path, rigging costs, and opening the scan room access panel. We will work closely with your facilities planning department to insure proper timing of the de-installation. The system will be de-installed, removed, and shipped by our GE team to our Goldseal business in Waukesha, WI. We understand and confirm that this unit may not be returned to the State of North Carolina without proper authorization from the North Carolina Certificate of Need (CON) section of DHSR.

Thank you again for the opportunity to earn your business. If you have any additional questions, feel free to call me at any time.

Sincerely,

Nick Bengel
Imaging Account Manager, NC
General Electric Healthcare
414-238-7008
Nicholas.bengel@ge.com

Appendix F

Response to Required Questions

Responses to the Required Questions

1. **A comparison of the existing and replacement equipment, using the format in the attached table. Note: If the manufacturer's model and serial numbers for the existing equipment are not provided, the exemption request will not be processed until the numbers are provided.**

   See equipment comparison table in Appendix B

2. **A description of the basic technology and functions of the existing and replacement equipment, including diagnostic and treatment purposes for which the equipment is used or capable of being used.**

   Magnetic resonance imaging (MRI) is a test that uses a magnetic field and pulses of radio wave energy to make pictures of organs and structures inside the body. In many cases, MRI gives different information about structures in the body than can be seen with an X-ray, ultrasound, or computed tomography (CT) scan. MRI also may show problems that cannot be seen with other imaging methods. MRI is used to find problems such as tumors, bleeding, injury, blood vessel diseases, or infection.

3. **Brochures or letters from the vendor describing the capabilities of the existing equipment and the replacement equipment.**

   See the vendor quote in Appendix A for the specifications and Appendix B for the brochure of the new replacement unit. Brochures for the existing equipment are also in Appendix B.

4. **A copy of the purchase order for the existing equipment, including all components and original purchase price.**

   See Appendix B for the original purchase orders for the existing equipment.

5. **A copy of the title, if any, for the existing equipment or the capital lease for the existing equipment.**

   The existing equipment was purchased new. A title for the equipment does not exist.

6. **If the replacement equipment is to be leased, a copy of the proposed capital lease that transfers substantially all the benefits and risks inherent in the ownership of the equipment to the lessee of the equipment, in accordance with criteria in Generally Accepted Accounting Principles (GAAP).**

   Not Applicable. The replacement equipment will be purchased new, not leased.

7. **If the replacement equipment is to be purchased, a copy of the proposed purchase order or quotation, including the amount of the purchase price before discounts and trade-in allowance.**

   See Appendix A for the complete quote for the replacement equipment from the vendor.

8. **A letter from the person taking possession of the existing equipment that acknowledges the existing equipment will be permanently removed from North Carolina, will no longer be exempt from requirements of the North Carolina Certificate of Need law, and will not be used in North Carolina without first obtaining a new certificate of need.**

   See Appendix E for documentation from the vendor that shows the existing equipment will be permanently removed from North Carolina, will no longer be exempt from requirements of the North Carolina Certificate of Need law, and will not be used in North Carolina without first obtaining a new certificate of need.

9. **Documentation that the existing equipment is currently in use and has not been taken out of service.**

   The existing equipment is currently in service and is being used to perform MRI scans on patients that need them. In fact, VMC performed over 11,376 MRI scans in FY16 on its existing three units combined.

Appendix G

Original Certificate of Need &

Hospital License

State of North Carolina

Department Of Health and Human Services
Division Of Facility Services
Certificate Of Need

FID #933410
Project Identification Number Q-5898-98 Effective Date December 1, 1998

Issued to: Pitt County Memorial Hospital (Leesee) and East Carolina University School of Medicine (Lessor)
2100 Stantonsburg Rd.
Greenville, NC 27835-6028

The North Carolina Department of Health and Human Services, pursuant to the North Carolina Health Planning and Resource Development Act of 1978, G.S. § 131-175, et seq., as amended and recodified, G.S. § 131E-175, et seq., hereby finds and certifies that the new institutional health service proposed by the person listed above is consistent with, or as conditioned is consistent with the plans, standards, and criteria prescribed by the Act and the rules and regulations promulgated thereunder. The findings of the Department are attached hereto and incorporated by reference.

This Certificate affords the person listed above the opportunity to proceed with development of the proposed new institutional health service in a manner consistent with the plans, standards, and criteria prescribed by the Act and the rules and regulations promulgated thereunder. This Certificate includes and is limited to:

SCOPE: Acquire a Siemens 1.5 Tesla Magnetom Symphony MRI scanner to replace the existing Semens SP 4000 1.5 Tesla MRI scanner/Pitt County

CONDITIONS: See Reverse Side

PHYSICAL LOCATION: 600 Moye Boulevard
Greenville, NC 27835

MAXIMUM CAPITAL EXPENDITURE: $2,893,999.00

TIMETABLE: See Reverse Side

FIRST PROGRESS REPORT DUE: March 15, 1999

This Certificate is limited to the person listed above and is not transferable or assignable. This Certificate may be withdrawn as provided in G.S. § 131E-189, and the rules and regulations promulgated thereunder.

Issuance of this Certificate does not supplant provisions or requirements embodied in codes, ordinances, statutes other than G.S. § 131E-175, et seq., rules regulations or guidelines administered or enforced by municipal, state or federal agencies or the agent thereof.

Lee B. Hoffman by CBS&c
Chief, Certificate of Need Section

CONDITIONS:

1. Pitt County Memorial Hospital, Inc. and East Carolina University School of Medicine shall materially comply with all representations made in the certificate of need application.

2. Pitt County Memorial Hospital, Inc. and East Carolina University School of Medicine shall not increase charges over those projected in the application in the first three years of operation of the new MRI scanner.

3. Pitt County Memorial Hospital, Inc. and East Carolina University School of Medicine shall provide a letter to the Certificate of Need Section from the person taking possession of the existing equipment that acknowledges the existing equipment: will be permanently removed from North Carolina, will no longer be exempt from requirements of the North Carolina Certificate of Need law, and will not be used in North Carolina without first obtaining a new certificate of need.

4. Pitt County Memorial Hospital, Inc. and East Carolina University School of Medicine shall acknowledge acceptance and compliance with all conditions stated herein to the Certificate of Need Section in writing prior to the issuance of the certificate of need.

A letter acknowledging acceptance and compliance with all conditions stated in the conditional approval letter was received by the Certificate of Need Section on December 1, 1998.

TIMETABLE:

Obtaining funds necessary to undertake project	December 1, 1999
Completion of preliminary drawings	December 15, 1999
Completion of final drawings and specifications	December 30, 1999
25% completion of construction	April 30, 1999
50% completion of construction	May 7, 1999
75% completion of construction	May 21, 1999
Occupancy/offering of service(s)	June 1, 1999
Ordering equipment	March 15, 1999
Operation of equipment	June 1, 1999
Certification of Shielding and MRI Unit	May 30, 1999

State of North Carolina

Department of Health and Human Services
Division of Health Service Regulation

Effective January 01, 2017, this license is issued to

Pitt County Memorial Hospital, Inc.

to operate a hospital known as

Vidant Medical Center

located in Greenville, North Carolina, Pitt County.

This license is issued subject to the statutes of the State of North Carolina, is not transferable and shall remain in effect until amended by the issuing agency.

Facility ID: 933410

License Number: H0104

Bed Capacity: *909*

General Acute 782, Rehabilitation 75 , Psych 52,

Dedicated Inpatient Surgical Operating Rooms: 7
Dedicated Ambulatory Surgical Operating Rooms: 0
Shared Surgical Operating Rooms: 26
Dedicated Endoscopy Rooms: 4

Authorized by:

Secretary, N.C. Department of Health and Human Services

Director, Division of Health Service Regulation