



NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor
KODY H. KINSLEY • Secretary
MARK PAYNE • Director, Division of Health Service Regulation

VIA EMAIL ONLY

August 31, 2022

Lisa Griffin
llgriffin@novanthealth.org.

Exempt from Review – Replacement Equipment

Record #: 4013
Date of Request: August 30, 2022
Facility Name: Novant Health Thomasville Medical Center
FID #: 923112
Business Name: Novant Health, Inc.
Business #: 1341
Project Description: Replace fixed MRI scanner on main campus
County: Davidson

Dear Ms. Griffin:

The Healthcare Planning and Certificate of Need Section, Division of Health Service Regulation (Agency), determined that the above referenced project is exempt from certificate of need review in accordance with G.S. 131E-184(f). Therefore, you may proceed to acquire without a certificate of need the GE Voyager fixed MRI scanner to replace the GE Avanto #26489 fixed 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.

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,

[Handwritten signature of Gregory F. Yakaboski]

Gregory F. Yakaboski
Project Analyst

[Handwritten signature of Micheala Mitchell]

Micheala Mitchell
Chief

cc: Acute and Home Care Licensure and Certification Section, DHSR
Construction Section, DHSR

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES • DIVISION OF HEALTH SERVICE REGULATION
HEALTHCARE PLANNING AND CERTIFICATE OF NEED SECTION

LOCATION: 809 Ruggles Drive, Edgerton Building, Raleigh, NC 27603
MAILING ADDRESS: 809 Ruggles Drive, 2704 Mail Service Center, Raleigh, NC 27699-2704
https://info.ncdhhs.gov/dhsr/ • TEL: 919-855-3873

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER

August 30, 2022



**Via Email**

Greg Yakaboski, Project Analyst, Certificate of Need  
N.C. Department of Health Service Regulation  
809 Ruggles Drive  
Raleigh, North Carolina 27603

2085 Frontis Plaza Boulevard  
Winston-Salem, NC 27103

Re: Novant Health Thomasville Medical Center (FID 923112)  
Replacement of Existing MRI Scanner  
Huntersville, North Carolina (Davidson County)

Dear Mr. Yakaboski:

Pursuant to N.C. Gen. Stat. § 131E-184(f), this letter serves as prior written notice that Novant Health Thomasville Medical Center (“NHTMC”) intends to replace an existing MRI scanner currently located in the MRI Department of NHTMC. NHTMC’s project meets the requirements set forth in N.C. Gen. Stat. 131E-184(f) for “replacement equipment” that exceeds two million (\$2,000,000) threshold in the following ways:

**Main Campus**

NHTMC is located at 207 Old Lexington Road, Thomasville, North Carolina. See **Attachment A** which displays the campus map, administration, and MRI location for NHTMC. NHTMC is a licensed health service facility and provides its clinical services and exercises financial and administrative control from this location. Administration is located on the ground floor. The MRI department is also located on the ground floor.

**Previous Certificate of Need**

The existing fixed MRI was acquired in November 2007 and is approved by project ID G-006828-03 and this is the unit in need of replacement. See **Attachment B**, which denotes the existing fixed MRI scanner.

**Replacement Equipment**

The proposed project meets the definition of “replacement equipment” found in N.C.G.S. 131E-176(22a) and 10A N.C.A.C 14C.0303 for the reasons found on the following page:

Mr. Greg Yakaboski  
August 30, 2022  
Page 2

- (1) NHTMC will replace the existing equipment with the proposed equipment that is functionally similar and will be used for the same diagnostic purposes, although it possesses expanded capabilities due to technological improvements.
- (2) The proposed equipment will not be used to provide a new health service.
- (3) The acquisition of the proposed equipment will not result in more than a 10% increase in patient charges or per procedure operating expenses within the first twelve months after the replacement equipment is acquired.

The replacement involves the existing MRI scanner which was acquired in 2007 and is in need of an upgrade and would increase capacity in the MRI Department at NHTMC. **Attachment C** contains the Equipment Comparison Form.

See **Attachment D** for the Equipment Quote for the new MRI scanner. As part of the equipment cost, the vendor will provide onsite clinical training for the equipment. Also, the existing equipment will be traded in and removed by GE as indicated on page 22 (page 27 of the combined pdf) of the equipment quote. The existing unit will be removed by the vendor and will be taken out of service in North Carolina. The total capital cost for the proposed replacement equipment project is estimated to be \$2,289,233. See **Attachment E** – Project Capital Cost Form.

In support of our request, please find attached:

- Attachment A** – NHTMC Campus Map
- Attachment B** – NHTMC 2022 LRA Excerpt
- Attachment C** – Equipment Comparison Form
- Attachment D** – Equipment Quote
- Attachment E** – Projected Capital Costs Form

NHTMC's acquisition of the replacement fixed MRI Scanner does not require a certificate of need because none of the definitions of "new institutional health services" set forth in N.C.G.S. Section 131E-176(16) apply to the proposed project. As outlined above, the total cost for the project is \$2,289,233. The proposed capital cost includes equipment, as well as studies, surveys, designs, plans, working drawings, specifications, construction installation and other activities essential to making the equipment operational.

Based on the information provided, please confirm that NHTMC's replacement equipment request does not constitute a new institutional health service and is exempt from certificate of need review as indicated above.

If you need additional information, please do not hesitate to contact me.

Sincerely,

*Lisa Griffin*

Manager, Strategic Planning

Enclosures

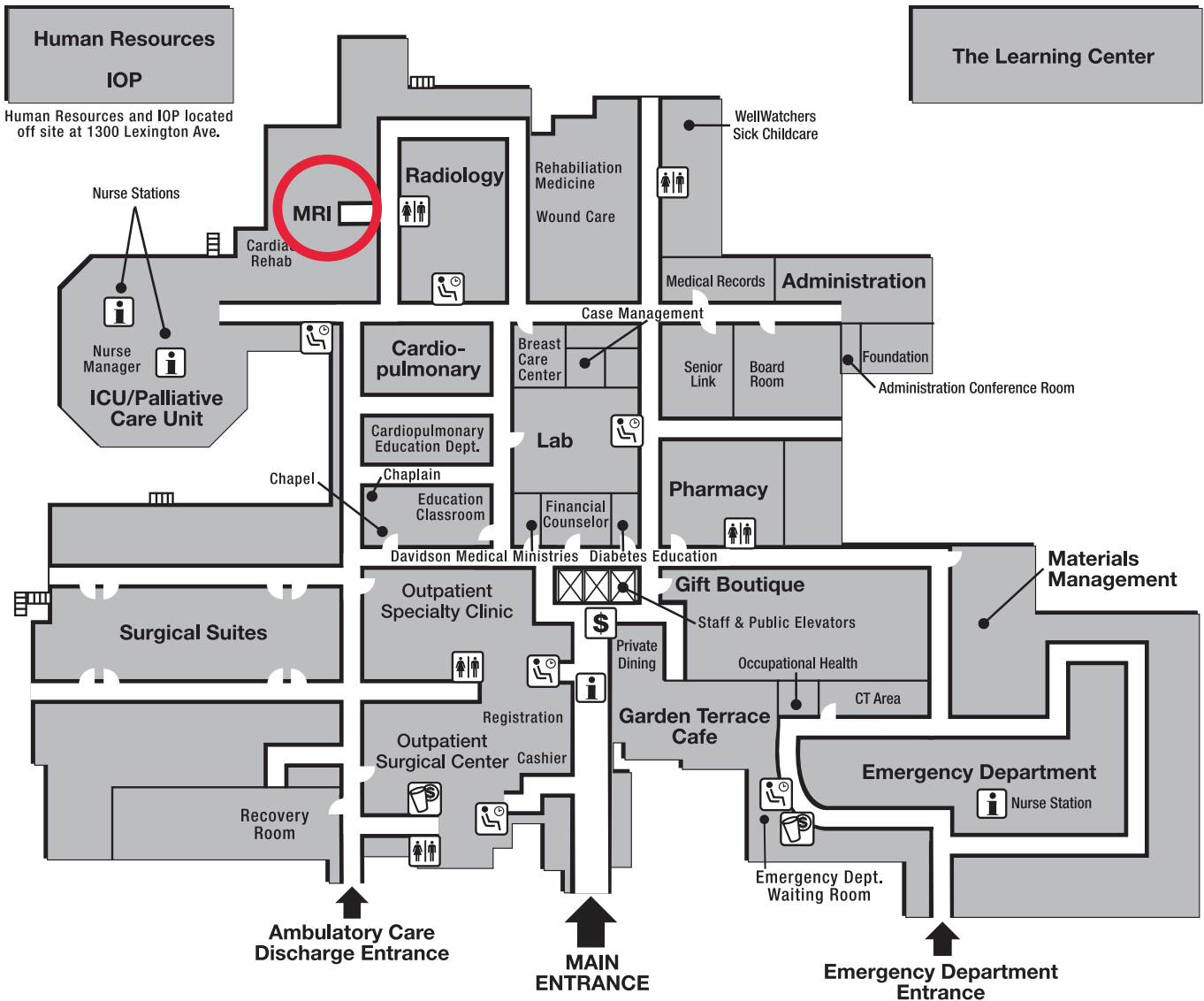


Legend			

# Ground floor

## Novant Health Thomasville Medical Center

NovantHealth.org



All responses should pertain to **October 1, 2020 through September 30, 2021**.

**Instructions for Hospitals with multiple campuses: For MRI Services, (Sections 10b-10e, pp 17-18), do not provide cumulative/combined data for all campuses. Provide data for individual campuses only.**

**b. MRI Procedures**

Indicate the number of procedures performed on MRI scanners (units) operated during the 12-month reporting period at your facility. For hospitals that use equipment at multiple sites/campuses, please copy the MRI pages and provide separate data for each site/campus. **Campus – if multiple sites:** \_\_\_\_\_

Procedures	Inpatient Procedures*			Outpatient Procedures*			TOTAL Procedures
	With Contrast or Sedation	Without Contrast or Sedation	TOTAL Inpatient	With Contrast or Sedation	Without Contrast or Sedation	TOTAL Outpatient	
Fixed	143	277	420	575	2,132	2,707	3,127
Mobile (performed only at this site)	N/A						
<b>TOTAL**</b>	143	277	420	575	2,132	2,707	3,127

\* An MRI procedure is defined as a single discrete MRI study of one patient (single CPT-coded procedure). An MRI study means one or more scans relative to a single diagnosis or symptom.

\*\* Totals must be greater than or equal to the totals in the MRI Patient Origin Table on page 30 of this application.

Note: Healthcare Planning and Certificate of Need may request CPT codes for MRI procedures if further clarification is needed.

**c. Fixed MRI Scanners**

Indicate the number of MRI scanners (units) operated during the 12-month reporting period at your facility. For hospitals that operate medical equipment at multiple sites/campuses, please copy the MRI pages and provide separate data for each site/campus. **Campus – if multiple sites:** \_\_\_\_\_

Fixed Scanners	Number of Units
Number of fixed MRI scanners-closed, including open-bore scanners (do not include any Policy AC-3 scanners)	1
Number of fixed MRI scanners-open (do not include any Policy AC-3 scanners)	0
Number of Policy AC-3 MRI scanners used for general clinical purposes	0
<b>Total Fixed MRI Scanners</b>	1

Number of grandfathered fixed MRI scanners on this campus: 0

**For questions, please contact Healthcare Planning and Certificate of Need at 919-855-3873.**

CON Project ID numbers for all other fixed MRI scanners on this campus: G-006826-03

## EQUIPMENT COMPARISON

<i>NH Thomasville Medical Center MRI Replacement</i>	EXISTING EQUIPMENT	REPLACEMENT EQUIPMENT
Type (e.g., Cardiac Catheterization, Gamma Knife®, Heart-lung bypass machine, Linear Accelerator, Lithotripter, MRI, PET, Simulator, CT Scanner, Other Major Medical Equipment)	MRI Scanner	MRI Scanner
Manufacturer	GE	GE
Model number	Avanto	Voyager
Other method of identifying the equipment (e.g., Room #, Serial Number, VIN #)	26489	TBD
Is the equipment mobile or fixed?	Fixed	Fixed
Date of acquisition	November 2007	TBD
Was the existing equipment new or used when acquired? / Is the replacement equipment new or used?	New	New
Total projected capital cost of the project <Attach a signed Projected Capital Cost form>	NA	\$2,289,233
Total cost of the equipment	NA	\$1,435,165
Location of the equipment <Attach a separate sheet for mobile equipment if necessary>	TMC MRI Dept	TMC MRI Dept
Document that the existing equipment is currently in use	See Enclosed LRA Excerpt	NA
Will the replacement equipment result in any increase in the <b>average charge per procedure</b> ?	NA	No
If so, provide the increase as a percent of the current average charge per procedure	NA	NA
Will the replacement equipment result in any increase in the <b>average operating expense per procedure</b> ?	NA	No
If so, provide the increase as a percent of the current average operating expense per procedure	NA	NA
Type of procedures performed on the existing equipment <Attach a separate sheet if necessary>	MRI Procedures	NA
Type of procedures the replacement equipment will perform <Attach a separate sheet if necessary>	NA	MRI Procedures

Date of last revision: 5/17/19



August 18, 2022  
 Quote Number: 2006273621.9  
 Customer ID: 1-23HZ6X  
 Agreement Expiration Date: 09/17/2022

Novant Health Thomasville Medical Center  
 207 Old Lexington Rd  
 Thomasville, NC 27360-3428

This Agreement (as defined below) is by and between the Customer and the GE Healthcare business (“GE Healthcare”), each as identified below for the sale and purchase of the Products and/or Services identified in this Quotation, together with any applicable schedules referred to herein (“Quotation”). “Agreement” is this Quotation and either: (i) the Governing Agreement identified below; or (ii) if no Governing Agreement is identified, the GE Healthcare Terms and Conditions and Warranties that apply to the Products and/or Services identified in this Quotation. In the event of conflict, the Quotation supersedes.

GE Healthcare can withdraw this Quotation at any time before Customer: (i) signs and returns this Quotation or (ii) provides evidence of Quotation acceptance satisfactory to GE Healthcare (“Quotation Acceptance”). On Quotation Acceptance, this Agreement is the complete and final agreement of the parties relating to the Products and/or Services identified in this Quotation. There is no reliance on any terms other than those expressly stated or incorporated by reference in this Agreement and, except as permitted in this Agreement, no attempt to modify will be binding unless agreed to in writing by the parties. Modifications may result in additional fees and cannot be made without GE Healthcare’s prior written consent.

Handwritten or electronic modifications on this Agreement (except an indication of the form of payment, Customer purchase order number and signatures on the signature blocks below) are void.

Governing Agreement:	Novation Vizient Supply LLC
Terms of Delivery	FOB Destination
Billing Terms	80% on Delivery / 20% on Acceptance
Payment Terms	45 Net
Total Quote Net Selling Price	\$1,320,488.40
Sales and Use Tax Exemption	No Certificate on File

**IMPORTANT CUSTOMER ACTIONS:**

Please select your planned source of funds. Source of funds is assumed to be cash unless you choose another option. Once equipment has been shipped, source of funds changes cannot be allowed.

- Cash
- GE HFS Loan                       GE HFS Lease
- Other Financing Loan               Other Financing Lease              Provide Finance Company Name \_\_\_\_\_

The parties have caused this Agreement to be executed by their authorized representative as of the last signature date below.

Novant Health Thomasville Medical Center

**Signature:** \_\_\_\_\_

**Print Name:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Date:** \_\_\_\_\_

\_\_\_\_\_

Purchase Order Number, if applicable

GE Precision Healthcare LLC, a GE Healthcare business

**Signature:** Herb Klann\_DEL

**Title:** Sr Sales Manager Imaging

**Date:** August 18, 2022





## Catalog Item Details

Line	Qty.	Catalog	
1	1.00	Y0000LC	Pricing Non-Disclosure Language

This CONFIDENTIAL offer may not be shared with any third parties, buying evaluation groups or anyone not directly employed by customer. This offer is being extended in relation to a national show-site agreement, research partnership, or other non-standard transaction. If required for publishing, GE will happily provide a list price quote.

Line	Qty.	Catalog	
2	1.00	S7529WM	SIGNA™ VOYAGER 1.5T 49CH MR SYSTEM

The AIR™ IQ Edition of the SIGNA™ Voyager 1.5T 70cm wide-bore magnetic resonance system was designed to enable you to deliver both clinical excellence and operational efficiency while addressing the cost of ownership for 1.5T wide-bore technology. With SIGNA™ Voyager simplify and accelerate the scanning process from set-up to acquisition to post-processing for your technical staff, with access to an extensive range of clinical imaging and advanced visualization capability for your clinicians.

The SIGNA™ Voyager system catalog comprises the system and site collector kits and the core RF coil suite.

In addition, the SIGNA™ Works AIR™ IQ Edition provides supplemental advanced applications as well as specialized applications, including AIR™ Recon DL, that extend and enhance the clinical capability and operational performance of the SIGNA™ Works toolkits (quoted and described separately). This enhanced edition of SIGNA™ Voyager also provides a 49-channel upgrade for the TDI RF-receive architecture:

- TDI 49-channel Upgrade
- TDI HNU and PA Coil Suite
- Advanced Applications Toolkits
- AIR™ IQ Edition Applications

### TOTAL DIGITAL IMAGING (TDI) and RF COIL SUITE

This offering of SIGNA™ Voyager features the Total Digital Imaging RF-architecture with a 49-channel configuration. The SIGNA™ Voyager coil suite is designed to enhance patient comfort and image quality while simplifying workflow. The suite includes:

- (1) TDI Posterior Array
- (1) TDI Head-Neck Unit

The TDI Posterior Array is designed to simplify workflow and enhance efficiency for the technologist. The PA coil is embedded in the patient table (sold separately) and can be used in conjunction with the HNU (included) and the Anterior Array (sold separately). Whole-body imaging and parallel imaging in 3 directions are supported. In addition, the system will automatically select the appropriate subset of coil elements based on the prescribed FOV and is invisible to additional surface coils when they are placed directly on top of the surface.

- Elements: 32
- Length: 120.5 cm; Width: 48.6 cm
- S/I coverage: 113 cm
- Parallel imaging in all three scan planes

The TDI Head and Neck Unit comprise the baseplate and the anatomically optimized Neuro-vascular array and the Open-face array. The superior end of the HNU can be elevated to enhance patient comfort and access. The HNU is designed to be used in conjunction with the TDI Posterior Array and the Anterior Array (sold separately). Parallel imaging in 3 directions is supported.

- Elements: up to 24 combined with TDI PA and TDI AA
- Length: 53 cm; Width: 35 cm
- Height with NV Array: 35 cm
- Height with Open Array: 25.7 cm
- Parallel imaging in all three scan planes

## SIGNA™WORKS ADVANCED APPLICATIONS

The SIGNA™Works AIR™ IQ Edition clinical imaging tools are organized and optimized to address six clinical work areas: NeuroWorks, OrthoWorks, BodyWorks, OncoWorks, CVWorks and PaedWorks. Each clinical toolkit comprises pre-programmed protocols, clinical applications and visualization tools designed for the challenges of each imaging area. In addition, the SIGNA™Works AIR™ IQ Edition provides advanced applications that extend and enhance the clinical capability and performance of the SIGNA™Works toolkits (quoted and described separately).

### Advanced Application for NeuroWorks

- eDWI enhanced diffusion with Multi-B value and SmartNEX
- DTI diffusion tensor imaging
- FiberTrak post-processing for diffusion tensor to display white matter tracking
- 3D SWAN 2.0 GRE-based multi-echo susceptibility imaging including phase image
- PROBE PRESS SV brain spectroscopy
- Inhance 2.0 non-contrast MRA suite (3D velocity, 2D inflow, inflow IR, and Deltaflow)

### Advanced Applications OrthoWorks

- MAVRIC SL 3D FSE-based spectral imaging for MR-Conditional implants with T1, PD, T2 and STIR
- CartiGram T2 cartilage mapping

### Advanced Applications for BodyWorks

- 3D LAVA GRE 2-point Dixon fat-water separation for dynamic or single-phase imaging (breath-hold or free-breathing)
- IDEAL FSE 3-point Dixon fat-water separation
- Flex 2-point Dixon fat-water separation for 2D FSE, 3D Cube and GRE
- Inhance 2.0 non-contrast MRA suite with 3D velocity, 2D inflow, inflow IR and Deltaflow
- StarMap iron assessment for liver and heart (acquisition)

### Advanced Applications for OncoWorks

- eDWI enhanced diffusion with Multi-B value and SmartNEX
- 3D LAVA GRE 2-point Dixon fat-water separation for dynamic or single-phase imaging (breath-hold or free-breathing)

### Advanced Applications for CVWorks

- Cine IR fast gradient echo with IR-prep pulse
- 2D MDE IR-prep and gated, fast gradient echo imaging with wide bandwidth suppression and single-shot
- 2D PS MDE phase sensitive tissue characterization with wide bandwidth suppression and single-shot
- Black Blood SSFSE single-shot FSE-based imaging with double IR and triple IR
- StarMap iron assessment for liver and heart (acquisition)
- TRICKS dynamic contrast enhanced, multiphase 3D MRA
- Inhance 2.0 non-contrast MRA suite with 3D velocity, 2D inflow, inflow IR and Deltaflow

### Advanced Applications PaedWorks

- eDWI enhanced diffusion with Multi-B value and SmartNEX
- DTI diffusion tensor imaging
- FiberTrak post-processing for diffusion tensor to display white matter tracking
- 3D SWAN 2.0 GRE-based multi-echo susceptibility imaging including phase image
- PROBE PRESS SV brain spectroscopy
- MAVRIC SL 3D FSE-based spectral imaging for MR-Conditional implants with T1, PD, T2 and STIR
- 3D LAVA GRE 2-point Dixon fat-water separation for dynamic or single-phase imaging (breath-hold or free-breathing)
- Inhance 2.0 non-contrast MRA suite with 3D velocity, 2D inflow, inflow IR and Deltaflow
- Cine IR fast gradient echo with IR-prep pulse
- 2D MDE IR-prep and gated, fast gradient echo imaging with wide bandwidth suppression and single-shot
- 2D PS MDE phase sensitive tissue characterization with wide bandwidth suppression and single-shot
- Black Blood SSFSE single-shot FSE-based imaging with double IR and triple IR

- StarMap iron assessment for liver and heart (acquisition)

#### AIR™ IQ EDITION APPLICATIONS

In addition to the supplemental advanced applications for the NeuroWorks, OrthoWorks, BodyWorks, OncoWorks, CVWorks and PaedWorks toolkits, this configuration of SIGNA™ Voyager further expands and enhances clinical imaging capability with special AIR™ Edition applications:

- AIRx™ Auto Graphic Prescription
- AIR™ Recon DL
- HyperWorks Acceleration
- DiffusionWorks Advanced Diffusion
- DISCO and DISCO Star Body Imaging
- Silent Suite and oZTEo MR Bone Imaging
- CardioMaps and Time Course Cardiac Imaging
- 3D PROMO Prospective Motion Correction
- Cube MDSE vessel wall imaging
- IDEAL IQ liver triglyceride assessment

#### AIRx™ AUTO GRAPHIC PRESCRIPTION

Change the way you prescribe brain and knee exams. AIR x™ Auto Graphic Prescription uses deep learning algorithms, instead of an atlas-based method, to automatically identify anatomical structures and prescribe slice locations for brain and knee exams. As a result of the deep learning algorithms, AIRx™ automatically adapts slice prescriptions to various patient anatomies and structures to enable consistency and productivity for slice positioning from technologist to technologist, patient to patient and the same patient overtime.

#### AIR™ RECON DL

Level up your imaging. AIR™ Recon DL is a deep learning-based reconstruction algorithm that utilizes a trained neuro network to remove noise and ringing artifacts from the raw scan data. As a result, AIR™ Recon DL delivers images with enhanced SNR and sharpness while also enabling the reduction in scan time and resulting exam time. AIR™ Recon DL is directly embedded in the reconstruction pipeline to address image quality at the foundation level to produce TrueFidelity images (and therefore is not a traditional filter or a post-processing technique).

- Intelligent pipeline reconstruction produces TrueFidelity images
- Reduces image noise at the foundation level
- Reduced Gibbs and truncation artifacts at the foundation level with intelligent ringing suppression
- Reduces scan time and resulting exam times
- Tailor level based on preference

#### ADVANCED DIFFUSION PACKAGE

Extend diffusion capability. The Diffusion Package delivers techniques that reduce distortion, correct for motion and increase spatial resolution and performance for diffusion and diffusion tensor imaging.

- PROGRES distortion and motion correction for diffusion
- MUSE multi-shot high-resolution diffusion
- FOCUS DWI 2D slice-selective high-resolution diffusion
- MAGiC DWI diffusion-based synthetic multiple b-value imaging

#### HYPERWORKS ACCELERATION

Advance your acceleration capability. The HyperWorks toolkit comprises a new generation of acceleration tools that employ a variety of optimized approaches to accelerate imaging for a broad range of exams.

- HyperSense 2.0 compressed sensing
- HyperCube tailored RF
- HyperBand simultaneous slice excitation
- HyperMAVRIC SL accelerated spectral imaging

**DISCO STAR and DISCO**

Go breath-hold optional. DISCO Star enables the of option of free-breathing dynamic abdominal imaging for patients with limited breath-hold capability or patients who are unable to follow breathing instructions. DISCO Star uses an in-plane radial acquisition trajectory to provide active motion compensation, without navigators or bellows, to address both set-up time and rescans due to motion artifacts. The offering also includes LAVA Star, which provides the same motion robust, free-breathing scan for single phase (pre-contrast or delayed) imaging.

**SILENT SUITE and oZTEo MR BONE IMAGING**

Address noise and motion. Silent Suite comprises the 3D SILENZ Zero-TE sequence and Silent PROPELLER. SILENZ 3D uses high bandwidth excitation and reduced gradient switching to deliver sound levels near ambient while Silent PROPELLER uses a modified gradient waveform approach to reduce acoustic levels to less than 11dB above the ambient room noise while retaining the motion insensitivity of PROPELLER. (Refer to the data sheet for contrast-weighting details.)

Extend contrast capability. oZTEo MR Bone imaging utilizes the 3D SILENZ ZTE sequence to complement the conventional soft tissue exam with cortical bone surface information. Automated grayscale inversion provides positive bone contrast. The ZTE sequence can be used for 3D isotropic resolution with inherent motion insensitivity due to the radial acquisition technique. oZTEo can be used with any surface coil that is compatible with SCENIC and includes protocols for common joints such as hip, shoulder, wrist, ankle and knee.

**CARDIOMAPS and TIME COURSE CARDIAC IMAGING**

Extend assessment capability. CardioMaps support detection of cardiac pathologies by quantitative measurement of T1 and T2 relaxation times. The T1 Mapping acquisition includes automatic motion correction that compensates for cardiac and/or respiratory motion, providing reliable results. T1 Mapping offers two methods of acquisition: Inversion-recovery Look-Locker with FIESTA readout (MOLLI) for apparent T1 (T1\*) measurements or saturation-recovery SMART1Map for true T1 measurements.

FGRE Time Course adds an additional tool to the CVWorks toolkit for myocardial tissue evaluation. FGRE Time Course is designed for first pass studies and integrates automatic motion correction (MoCo) that compensates for cardiac and/or respiratory motion providing reliable results.

**3D PROMO MOTION CORRECTION**

Correct for motion prospectively on 3D imaging. 3D PROMO prospective motion correction uses a real-time 3D navigator-based technique to correct for motion and is compatible with 3D Cube T2W, DIR and T2 FLAIR contrasts.

In addition, the SIGNA™ Voyager system comprises several essential elements described and quoted separately. These elements include:

- SIGNA™ Voyager Magnet, RF, and Gradient Assembly
- SIGNA™ Voyager AIR™ Edition Patient Table
- SIGNA™Works AIR™ IQ Edition Software and Clinical Applications Toolkits
- Host PC and Operator Console (GOC)
- Image Reconstruction Computer (ICN)
- Anterior Array Surface Coil

Line	Qty.	Catalog	
3	1.00	M70079AE	SIGNA™WORKS AIR™ EDITION MR29.1

The SIGNA™Works AIR IQ Edition is designed to change the way you work by simplifying and accelerating the scanning process from set-up to post-processing while delivering access to a broad range of clinical imaging capability. The SIGNA™Works AIR™ IQ Edition (MR29.1 software) delivers the foundational operating software, pulse sequence families, clinical applications toolkits, and visualization toolkits as well as acceleration and motion correction tools. The AIR™ IQ Edition of SIGNA™Works software features several new enhancements that improve Exam, Patient Setup and Scanning workflows:

The latest enhancements include several key improvements to Exam, Patient Setup and Scanning workflows:

- Split Exam create/assign separate exam number for a sub-set of series
- AIR™ Recon smart algorithm for brain, MSK, body, cardiac, PROPELLER MB and FOCUS DWI imaging
- Whole-Body automated multi-station localizer and auto pasting
- Whole-Body automated multi-station FSE-IR, 3D SPGR and DWI imaging
- SnapShot SSFSE multi-slice per breath-hold imaging
- Cube flexibility for modifying/reducing scan time
- Dynamic phase correction for FSE imaging
- Uniformity optimization for large FOV body diffusion
- Flexible ZIP allows for flexible resolution by percentage to enhance the sharpness while decreasing the scan time

## EXPRESS EXAM WORKFLOW

The SIGNA™Works AIR™ IQ Edition workflow tools comprise the modality worklist, protocol libraries, workflow manager, auto-functions, inline viewing and inline processing. Together these tools are designed to help change the way you work by simplifying and accelerating the scanning process from set-up to acquisition to post-processing. With SIGNA™Works, workflow can begin before the patient enters the magnet room and exams can be completed with a few mouse clicks delivering quality and consistency for all patients and from all technologists. At the same time, SIGNA™Works AIR™ workflow maintains the flexibility needed to rapidly adapt and optimize exams for specific patient situations.

AIR™ IQ Workflow delivers new capabilities that speed set-ups for all exams and streamline scanning for multi-station and combination exams. With AIR™ Workflow, scan set-up starts with Modality Worklist, 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, 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.

Protocol Tools enable exam automation while also giving the user complete control of protocols for prescription, saving, searching, and sharing. Protocols are organized in 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. Commonly used protocols can be flagged as favorites for quick selection from the Modality Worklist.

In addition to pre-programmed protocols, ProtoCopy enables a complete exam protocol to be shared with the click of a mouse. 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.

With the patient positioned, IntelliTouch and AIR Touch™ together simplify coil selection to one touch and one click. AIR Touch™ automatically determines coil element locations based on the IntelliTouch landmark and intelligently generates the coil configuration with elements activated to optimize image quality for coverage, uniformity, and parallel imaging acceleration factor.

At the console, the AIR™ WorkFlow Manager implements the selected protocol. 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.

When selected, AutoStart will 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.
- For breath-hold scanning, Auto Protocol Optimization provides automated alternative choices for spatial resolution and breath-hold time based on the original protocol. Technologists are liberated from troublesome scan time and image quality adjustments by selecting from pre-calculated options determined by the system.
- Whole Body Localizer automates the acquisition and pasting of multi-station scans for planning, and Whole-Body Imaging enables automated multi-station scanning with FSE-IR, 3D SPGR and DWI diffusion contrasts.
- Once scanning and processing are complete, Split Exam provides the capability to extract a subset of series from multi-station and combination exams to create/assign a separate exam number for accession numbers in billing and PACS systems.

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
- 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™WORKS AIR™ IQ EDITION TECHNOLOGIES

The acceleration, motion correction and tissue suppression technologies in the SIGNA™Works AIR™ IQ Edition are designed to address overall workflow, rescans and scan time as well as the impact of challenging patients, challenging anatomy and challenging physiology.

#### Acceleration Technology

The AIR™ IQ Edition delivers a suite of acceleration techniques designed to help address acquisition time.

- Smart Algorithm AIR™ Recon uses a smart reconstruction algorithm to address background noise and artifacts enabling enhanced image quality without the need for longer scan times and is compatible with critical imaging sequences including PROPELLER MB, 3D Cube, and FSE.
- ARC parallel imaging reduces scan time by using an adaptive auto-calibrating (data-driven) technique to selectively acquire data. As a result, ARC enables smaller FOV prescription with less sensitivity to motion and coil calibration artifacts.
- ASSET parallel imaging reduces scan time using an array spatial sensitivity (image driven) technique. ASSET takes advantage of the data produced by the multiple coil elements to reduce the total data needed to create an image.
- Flexible No Phase Wrap reduces scan time by reducing the number of increments acquired to address wrap-around based on a flexible user-selectable factor.
- Fraction NEX reduces scan time by reducing the number of data averages.

#### Motion Correction Technology

Enable free-breathing body exams and address the effects of motion with patient-adaptive technologies that proactively detect and correct for motion without hardware dependencies or the need for user intervention.

- Auto Body Navigators deliver real-time, respiratory motion compensated imaging for a broad range of sequences, including T1w dynamic contrast-enhanced imaging. Auto Body Navigators use a software-based tracking pulse that is automatically placed for the user and allows on-the-fly adjustment to adapt to challenging patient circumstances, again without the need for hardware.
- PROPELLER MB combines radial acquisition and motion correction post-processing to mitigate the effects of motion without the need to position the patient over a sensor. PROPELLER MB can be used to generate T1, T2, PD, T1 FLAIR, and T2 FLAIR contrasts and is compatible with Auto Body Navigators to enable usage for a broad range of exams. With the AIR™ IQ Edition, PROPELLER MB motion correction benefits from AIR™ Recon smart algorithm image quality.

#### Tissue Suppression Technology

Modify the contribution of fat or water signal with multiple tissue suppression techniques.

- FatSat uses a frequency selective pulse to target and suppress the signal from fat
- WaterSat frequency selective water suppression
- STIR inversion pulse fat or water suppression

- SPECIAL frequency selective fat suppression
- ASPIR spectrally selective fat suppression
- Flex 2-point Dixon techniques to separate fat and water signals

#### SIGNA™WORKS AIR™ IQ EDITION CLINICAL APPLICATIONS

The SIGNA™Works AIR™ IQ Edition clinical imaging tools are organized and optimized to address six clinical work areas: NeuroWorks, OrthoWorks, BodyWorks, OncoWorks, CVWorks and PaedWorks. Each clinical toolkit comprises pre-programmed protocols, clinical applications and visualization tools designed for the challenges of each imaging area. The resulting capability starts with simplified prescription and protocol set-up. Imaging capability extends to patient management and clinical workflow enhancements. Post-processing capability augments the portfolio with specialized tools designed to speed the review and processing tasks typically performed.

#### NeuroWorks Toolkit

- READYBrain auto-align for automated brain exam prescription
- PROPELLER MB motion robust radial-FSE with T1, PD, T2, T2 FLAIR, T1 FLAIR with STIR and ASPIR
- PROPELLER DW Duo FSE-based diffusion with susceptibility reduction
- 3D Cube 2.0 FSE-based imaging with T1, T2, T1 FLAIR, T2 FLAIR and STIR
- 3D Cube Dual Inversion Recovery for gray or white matter nulling
- 3D COSMIC modified steady state imaging
- 2D/3D MERGE T2\* multi-echo fast gradient echo imaging
- 3D BRAVO IR prepared fast SPGR imaging with concentric k-space filling
- 3D MP-RAGE IR prepared fast SPGR imaging with sequential k-space filling
- 3D FIESTA and 3D FIESTA-C fast steady state imaging
- BrainStat GVF and AIF parametric maps
- READYView and BrainView post-processing which include time series, DWI/ADC maps, DTI, variable echo, BOLD, and spectroscopy (SV, 2D, 3D)

#### OrthoWorks Toolkit

- FSE and frFSE fast spin echo imaging suites with dynamic phase correction
- High Bandwidth distortion reduction for FSE
- FatSat, STIR, SPECIAL, ASPIR, Spectral Spatial fat-suppression tools
- MARS High Bandwidth distortion reduction for FSE
- PROPELLER MB motion robust radial FSE with T1, PD, T2 and Fat Suppression (STIR and ASPIR)
- 3D Cube 2.0 FSE-based imaging with T1, T2, and STIR
- 3D COSMIC modified steady state imaging
- 2D/3D MERGE T2\* multi-echo fast gradient echo imaging
- READYView post-processing

#### BodyWorks Toolkit

- Auto Navigators diaphragm tracker for free-breathing scanning
- PROPELLER MB motion robust radial FSE with T1 and Fat Suppression (STIR and ASPIR)
- 3D Cube FSE-based imaging with T1, T2, and STIR
- 3D Dual Echo gradient echo in/out phase imaging
- 3D LAVA and Turbo LAVA with Turbo ARC and SPECIAL for dynamic or single-phase imaging (breath-hold or free-breathing)
- 3D MRCP frFSE imaging
- 2D Fat Sat FIESTA fast steady state imaging
- Enhanced SSFSE Snapshot multi-slice imaging
- Whole-Body multi-station localizer and pasting
- Whole-Body multi-station FSE-IR, 3D SPGR and DWI imaging
- Multiphase DynaPlan
- SmartPrep automated bolus detection
- Fluoro Trigger real-time bolus monitoring

#### OncoWorks Toolkit

- Auto Navigators diaphragm tracker for free-breathing scanning
- PROPELLER MB motion robust radial-FSE with T1, PD, T2, T2 FLAIR, T1 FLAIR with STIR and ASPIR
- PROPELLER DW Duo FSE-based diffusion imaging with susceptibility reduction
- 3D Cube 2.0 FSE-based imaging with T1, T2, T1 FLAIR, T2 FLAIR and STIR
- 3D Cube Dual Inversion Recovery for gray or white matter nulling
- 3D BRAVO IR prepared fast SPGR imaging with concentric k-space filling
- 3D MP-RAGE IR prepared fast SPGR imaging with sequential k-space filling
- Enhanced SSFSE Snapshot multi-slice imaging
- Whole-Body multi-station localizer and pasting
- Whole-Body multi-station FSE-IR, 3D SPGR and DWI imaging
- 3D LAVA and Turbo LAVA with Turbo ARC and SPECIAL for dynamic or single-phase imaging (breath-hold or free-breathing)
- Multiphase DynaPlan
- SmartPrep automated bolus detection
- Fluoro Trigger real-time bolus monitoring
- READYView, BrainView and BodyView post-processing

#### CVWorks Toolkit

- Auto Navigators diaphragm tracker for free-breathing scanning
- iDrive for free breathing cardiac planning
- 2D FIESTA Cine gated steady-state, multi-phase imaging
- 3D FS FIESTA steady-state imaging with Fat Sat
- 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
- READYView post-processing

#### PaedWorks Toolkit

- PROPELLER MB motion robust radial-FSE with T1, PD, T2, T2 FLAIR, T1 FLAIR with STIR and ASPIR
- 3D Cube 2.0 FSE-based imaging with T1, T2, T1 FLAIR, T2 FLAIR and STIR
- 3D Cube Dual Inversion Recovery for gray or white matter nulling
- 3D COSMIC modified steady state imaging
- 2D/3D MERGE T2\* multi-echo fast gradient echo imaging
- 3D BRAVO IR prepared fast SPGR imaging with concentric k-space filling
- 3D MP-RAGE IR prepared fast SPGR imaging with sequential k-space filling
- 3D FIESTA and 3D FIESTA-C fast steady state imaging
- Auto Navigators diaphragm tracker free-breathing scanning
- 3D LAVA and Turbo LAVA with Turbo ARC and SPECIAL for dynamic or single-phase imaging (breath-hold or free-breathing)
- 3D LAVA GRE 2-point Dixon fat-water separation for dynamic or single-phase imaging (breath-hold or free-breathing)
- Enhanced SSFSE Snapshot multi-slice imaging
- BrainStat GVF and AIF parametric maps
- READYView and BrainView post-processing

#### READYView Advanced Visualization

READYView is a SIGNA™ Works AIR™ IQ Edition 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 (BOLD) series fMRI processing
- Spectroscopy data (single voxel and 2D or 3D CSI)
- MR Touch (MR elastography) series

Line	Qty.	Catalog	
4	1.00	M70072MF	COMPUTING PLATFORM AND DICOM CONFORMANCE - T5820 GOC

The SIGNA™Works AIR™ IQ Edition computing platform utilizes a parallel, multi-processor design to enable simultaneous scanning, reconstruction, filming, post-processing, archiving and networking. The host PC operates on the Scientific Linux operating system and utilizes a single tower configuration. The computing platform also includes an LDC monitor and 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.

Host PC Platform

- Operating System: Scientific Linux
- Memory: 64 GB
- Hard Disk Storage: 1024 GB SSD
- Media Drives: CD/DVD

SIGNA™ Voyager 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 details.

Line	Qty.	Catalog	
5	1.00	M7079EB	Gen 7 DL Performance ICN

Computing Platform and DICOM Conformance

SIGNA™Works MR systems enhance data reconstruction with the Orchestra platform and Smart AIR™ Recon. The Orchestra computing toolbox enables the integration of advanced reconstruction elements to support demanding, data-intense, applications as well as access to the reconstruction algorithms. AIR™ Recon uses a smart reconstruction algorithm that reduces background noise and artifacts enhancing image quality without the need for longer scan times.

- Reconstruction Engine: Gen7 Dual Intel Xeon Gold 5118 processor
- Memory: ≥128 GB
- Hard Disk Storage: 960 GB SSD
- 2D FFT/second (256 x 256 Full FOV): 63,000 2D FFT/second
- Orchestra reconstruction toolbox
- AIR™ Recon reconstruction

SIGNA™Works MR systems generate 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. Refer to the DICOM Compliance Statement for details.

Line	Qty.	Catalog	
6	1.00	S7528TB	eXpress Detachable Patient Table and Dock Collector - AIR™ Edition

SIGNA™ Voyager AIR™ Edition offers optionally a fully dockable eXpress Patient Table, which features the embedded Posterior Array (provided with the main system), helps improve exam efficiency, patient transportation workflow, and patient comfort.

- 250kg (550lbs) maximum patient weight for scanning
- 250kg (550lbs) maximum lift capacity
- 30 cm/sec (fast), 1.9 cm/sec (slow), 25 cm/sec (patient positioning) longitudinal speed
- 181 cm or 205 cm total scannable range (depend on the room size)
- 70 cm to 93 cm minimum to maximum height
- Head-first or feet-first imaging for most exams

The dock collector contains the hardware to dock the eXpress Patient Detachable Table to the system.

Line	Qty.	Catalog	
7	1.00	M6006HM	SIGNA Voyager 1.5T AIR™ Edition IPM Magnet for Detachable Table

The magnet, RF-architecture and gradient technology on SIGNA™ Voyager are designed to deliver the signal-to-noise, dynamic range, spatial resolution, and temporal resolution performance needed to enable demanding clinical applications with exceptional image quality and operational excellence.

TECHNOLOGY FOUNDATION

- Magnet and Enclosures
- TDI RF-Receive Technology
- UHE with IGC Gradient
- Quite Acoustic Reduction Technology

MAGNET and ENCLOSURES

To improve the patient experience and provide high image quality, no other component of an MRI system has greater impact than the magnet. The SIGNA Voyager 1.5T system features a wide bore magnet that delivers a large field of view and a robust fat saturation required for abdominal, breast and off-centered FOV musculoskeletal imaging. 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 50 x 50 x 50 cm 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 SIGNA Voyager has very flexible installation specifications to provide easy siting. And with zero-boil-off magnet technology, helium refills are effectively eliminated even during installation, thus reducing operating costs and maximizing uptime.

- Manufactured by GE Healthcare.
- Operating field strength 1.5T (63.86 MHz).
- Active magnet shielding
- Zero boil-off Cryogenics
- Magnet length 179cm
- Magnet Weight 7,275 lbs (3,300 kg)
- Patient Aperture 74 cm
- Patient Bore Diameter 70cm
- Patient Bore Length 163cm
- Maximum Field of View (x,y,z) 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 0.10 and 0.15
- 40cm DSV 0.33 and 0.43
- 45cm DSV 0.88 and 1.0
- 48cm DSV 1.75 and 2.0
- 50cm DSV 2.8 and 3.3

DSV = Diameter Spherical Volume.

Fringe field (axial x radial):

- 5 Gauss = 4.0 m x 2.5 m
- 1 Gauss = 5.8 m x 3.2 m

Touch screen Dual In-Room Displays (IRD)

By consolidating all controls into one place, the Dual In-Room Displays (IRD) provides real-time feedback to the operator to

improve exam room efficiency. With an in-room display monitor available at either side of the magnet as standard, the technologist always has all the control he needs at his fingertips, irrespective of which side he is operating from. Further touch-screen capability makes the controls even more intuitive and easy to use. The display provides real time interaction with the scanner and the host computer. The user has direct control or selection of the following:

- Display of patient name, ID, study description
- Display and entry of patient weight
- Display and entry of patient orientation and patient position
- Cardiac waveform display and ECG/EKG lead confirmation with gating control: trigger select, invert and reset
- Respiratory waveform display

With AIR Touch™, you simply use IntelliTouch™, GE's 1-touch landmarking tool, to activate an optimized set of coils that is selected based on the patient's anatomy. This advanced technology selects from unlimited coil combinations such as the posterior array (PA) and flexible coils, to efficiently set up patients.

- AutoStart – initiate the scanner to automatically acquire, process, and network images
- Display connected coils and coil status
- Display of table location and scan time remaining
- Screen saver
- Control multiple levels of in-bore ventilation and lighting

#### TOTAL DIGITAL IMAGING

SIGNA™ Voyager features the Total Digital Imaging RF-architecture with a 33-channel configuration. The TDI RF-architecture uses a Direct Digital Interface (DDI) to convert the signal from each coil element to a digitized signal (there is no mixing of signal from multiple elements to the same digitizer) to deliver high signal, low noise with extended dynamic range or gray-scale capability. In addition, the TDI RF-architecture enables the capability to simultaneously acquire the MR signal from the integrated body coil and the high-density surface coil using Digital Surround Technology. The superior SNR and sensitivity of the high-density surface coil is then combined with the superior homogeneity and deeper signal penetration of the integrated body coil to deliver enhanced spine and body imaging.

- 33ch Total Digital Imaging (TDI)
- Direct Digital Interface (DDI)
- Digital Surround Technology (DST)

#### UHE with IGC GRADIENT TECHNOLOGY and QUIET TECHNOLOGY

SIGNA™ Voyager introduces the Ultra High Efficiency (UHE) gradient system with Intelligent Gradient Control technology (IGC). IGC gradient driver employs a digital control system that utilizes predictive models of the electrical and thermal characteristics of the gradient coil to maximize performance. As a result, SIGNA™ Voyager delivers exceptional minimum TR and TE capability while reducing power consumption. The gradient coil and the RF body coil are integrated into a single module which is water and air-cooled for optimum duty-cycle performance and patient comfort. In addition, the gradients are non-resonant and actively shielded to minimize eddy currents to deliver high fidelity, accuracy and reproducibility over a large FOV.

- Peak amplitude per axis: 36 mT/m
- Up to 150 T/m/s instantaneous peak slew rate per axis
- Maximum FOV: 50 cm x 50 cm x 50 cm
- Duty Cycle: 100%

#### ACOUSTIC REDUCTION TECHNOLOGY

GE has implemented Quiet Technology on critical components of the SIGNA MR system to reduce acoustic noise and improve the patient environment. This technology enables full use of the UHE 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. Quiet acoustic reduction uses 5 levels of isolation, dampening and gradient optimization technology to mitigate vibration and mute sound.

- Gradient & RF coil isolation – isolates the resonance module from the magnet
- Vibro-acoustic isolation – isolates the magnet from the building
- Mass-damped acoustic barriers – further mutes sound

- Gradient waveform optimization – user selectable

Line	Qty.	Catalog	
8	1.00	M7004FW	<b>Standard Cabinet Siting Kit</b>

Standard Cabinet Siting kit provides the cabinets and hardware components to install the system cabinets along the RF Screen Room wall shared between the magnet and equipment rooms.

Line	Qty.	Catalog	
9	1.00	S7528VP	<b>Voyager Preinstallation Collector - AIR Edition Standard Siting</b>

The Voyager 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. This collector contains the integrated cooling cabinet and the patient comfort and cryo hoses.

Line	Qty.	Catalog	
10	1.00	M6001AA	<b>Vent Adapter, Standard 8" Straight Up</b>

Vent Adapter, Standard 8" Straight Up

Line	Qty.	Catalog	
11	1.00	M70012TS	<b>Voyager Scan Room Collector - Long</b>

The Long Scan Room Collector contains a collection of cables such as gradient cables and other materials necessary for system interconnections. The long configuration is designed for room configurations that require a long length based on distance between system components.

Line	Qty.	Catalog	
12	1.00	M70032VL	<b>SIGNA Voyager LONG Scan and Equipment Room Kit</b>

SIGNA Voyager LONG Scan and Equipment Room Kit

Line	Qty.	Catalog	
13	1.00	M70022MC	<b>Main Disconnect Panel - 380V/400V/415V/480V 50/60Hz</b>

The Main Disconnect Panel safeguards the MR system's critical electrical components, by providing complete power distribution and emergency-off control.

Line	Qty.	Catalog	
14	1.00	M1000MW	<b>Operator Console Table</b>

The Operator Console Table is designed specifically for the color LCD monitor and keyboard.

Line	Qty.	Catalog	
15	1.00	M70012RP	<b>English Language Kit</b>

English Language Kit

Line	Qty.	Catalog	
16	1.00	R33012AC	<b>Standard Service License</b>

The Standard Service 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.

Line	Qty.	Catalog	
<b>17</b>	<b>1.00</b>	<b>M7006NA</b>	<b>1.5T 16-channel AIR Anterior Array</b>

The 16-channel AIR Anterior Array (AA) is the next generation anterior array coil that allows flexibility in any direction to conform to the patient’s anatomy. Based on the innovative AIR™ Coil technologies, the 1.5T 16ch AIR AA provides excellent image quality and acceleration performance, while improving the overall patient and user experience. The coil has been designed to adapt to various patient shapes and sizes, expanding positioning versatility.

Line	Qty.	Catalog	
<b>18</b>	<b>1.00</b>	<b>M7006YJ</b>	<b>1.5T AIR™ Multi-Purpose Coil Large &amp; Medium with Positioners</b>

A package includes 1.5T AIR™ Multi-Purpose (MP) Coils, Large and Medium, with a coil positioner kit.

The 21-channel 1.5T AIR Multi-purpose (MP) Large and The 20-channel 1.5T AIR MP Medium are the next generation multipurpose coils that allow flexibility in any direction to conform to the patient’s anatomy. Based on the innovative AIR™ Coil technologies, those 1.5T AIR™ MP Coils provide good image quality and acceleration performance, while improving the overall patient and user experience. Those coil have been designed to adapt various patient shapes and sizes, expanding positioning versatility. AIR™ MP Coil Large is recommended to be used for Shoulder, Forearm, Prostate, Hip/bony pelvis, Knee (large patients), Long bone, Foot/ankle. AIR™ MP Coil Medium is recommended to be used for Cardiac, Elbow, Hand/wrist, Knee (small patients), Forefoot.

The AIR™ MP Coil positioner kit includes a knee positioner, a foot-ankle positioner, a wedge pad, a u-shaped pad and a strap kit. Those are compatible with both AIR™ MP Coils Large and Medium for positioning.

Line	Qty.	Catalog	
<b>19</b>	<b>1.00</b>	<b>E8823NA</b>	<b>MRI Audio 1505 Complete system (for SIGNA Premier, Discovery™ MR750/750w, Optima™ MR450/450w, SIGNA™ PET/MR, SIGNA Architect/Artist/Voyager/Pioneer, SIGNA HDxt, and SIGNA Creator/Explorer hardware v25.3 and Pioneer hardware v26.1)</b>

MRI Audio 1505 Complete music system for MRI systems is designed for comfort and allows the patient to listen to music while being scanned in an MRI. The technologist is in full control of the system headphones, microphone, sound source and volume controls. Standard 3.5 mm plug for music source allows any compatible music player, tablet or phone. In-ear headphones work with any head coil.

Package includes:

- Digital amplifier
- iPad Mini
- iPad Mini mount with lock
- 3G transducer
- In-ear headphones, 29dB noise reduction
- Over-ear headphones, 29dB noise reduction
- Disposable ear tips (300 pairs)
- Technologist's speakers
- 6 ft RCA 3.5 mm cable
- Auto-voice/MIC adapter

Line	Qty.	Catalog	
<b>20</b>	<b>1.00</b>	<b>E4504FP</b>	<b>Eaton Single Phase 700 VA Partial UPS (MR package)</b>

Notes:

- Customer is responsible for rigging UPS unit
- Item is non-returnable and non-refundable
- Removal/disposal of the old unit is the customer’s responsibility

Using an uninterruptible power supply (UPS) can help improve user productivity and system reliability, as well as reduce service costs and increase system uptime.

Combining reliable double-conversion topology, internal static bypass and an easy-to-ready LCD menu display, the Eaton 9SX UPS provides the highly efficient and reliable power you expect from a 9-series UPS in a convenient tower form factor.

#### Applications

The Eaton® Single Phase 9SX 700 VA Partial UPS package is designed to support a variety of GE MR imaging systems. When Catalog# E4504FP is used with MR SIGNA™ Voyager, SIGNA™ Pioneer, SIGNA™ Premier, SIGNA™ Architect or SIGNA™ Hero systems, the configuration requires ordering a specific power cable (catalog# E4504FN).

Maintain productivity, improve reliability

#### Reliable power for critical systems

The 9SX offers the robust double-conversion, online power protection needed for medical, light industrial, automation and mission critical IT applications. With zero transfer time to battery, continuous filtering of power, and an internal, automatic static bypass, the 9SX ensures performance and compatibility.

- \* Maintains system's host computer and operator's workstation power for ~8 minutes after loss of power
- \* Minimizes loss of data
- \* Provides clean constant voltage power
- \* Host computer and operator's workstation electronics unaffected by under voltage, brownouts, line sags, over voltage, transients, periodic emergency generator testing or automatic transfer switch operation
- \* Host computer and operator's workstation electronics protected from utility power factor capacitor switching spikes and ring waves
- \* Host computer and operator's workstation electronics protected from utility re-closer operations common during thunderstorms
- \* Regulates output voltage to meet and exceed system electronics requirements
- \* Allows time for an orderly system shutdown in the event of an extended power outage
- \* Reduces maintenance costs
- \* Helps increase system uptime
- \* Suitable for engine generator applications
- \* Suitable for mobile applications (other optional equipment may be needed)
- \* Installation of the UPS by GE
- \* 1-year warranty on parts and labor

#### Increased battery life

- \* Advanced battery management to extend battery life and provide advanced notice before batteries fail
- \* Batteries are hot-swappable

#### More control

- \* Automate power delivery by utilizing switchable, programmable outlets
- \* Programmable signal input through the RPO port also enables the UPS to change operating modes in reaction to external events

#### Advanced LCD interface

- \* Simplify UPS monitoring with Eaton's advanced LCD display
- \* Easy access to UPS alarm history, energy logs, unit serial numbers and firmware versions enable first time issue resolution right at the source
- \* Eight user-selectable languages ensure success for global deployments

#### Specifications

- \* Power: 700 VA / 630 W
- \* Input connection: 5-15P, eight feet long
- \* Output receptacles: (5) 5-15R
- \* Dimensions (H x W x D, in. / mm): 9.9 x 6.3 x 13.9 / 252 x 160 x 357
- \* Weight (lb. / kg): 26.5 / 11.5

#### General

- \* Topology: Double-conversion, online
- \* Configuration: Tower
- \* Color: Black and silver
- \* Diagnostics: Full system self-test at power up, ABM battery test every 30 days
- \* Warranty: 1 year on electronics and battery

- \* Remote power off: Remote On/Off (ROO) and Remote Power Off (RPO) rear terminal blocks
- \* Contents: UPS, Safety guide, Quick Start Guide, Reference Guide, RS-232 serial cable, USB cable

Electrical input

- \* Nominal voltage: 120V default (100/110/120/125V)
- \* Input voltage range: Full load: 100-138V, ?25% load: 60-144V
- \* Frequency: 50/60 Hz
- \* Frequency range: 60 Hz: 50-70 Hz, 50 Hz: 40-60 Hz
- \* Input power factor ?99
- \* Input current distortion ?8%

Electrical output

- \* Power rating: 700VA / 630W
- \* Circuit breaker: None
- \* Nominal voltage: 120V default (100/110/120/125V)
- \* Output voltage regulation, steady state:  $\pm 2\%$  nominal mode
- \* Output voltage THD (online): Linear:  $< 3\%$
- \* Power factor: 0.9
- \* Efficiency (online mode with resistive load): 87%
- \* Transfer time: 0 ms

Communications

- \* User interface: Graphical display. UPS status in a single view.
- \* LEDs: 4 status-indicating LEDs
- \* Communication ports: RS-232 (RJ45) ports; USB port as standard (HID). 6-foot RS-232 and USB cables included

Environment & standards

- \* Operating temperature: 0 to 40 °C (32 to 104 °F) in Online mode, with linear derating for altitude
- \* Storage temperature: 0 to 35 °C (32 to 95 °F); without batteries: -25 to 55 °C (-13 to 131 °F)
- \* Relative humidity: 0 to 96% non-condensing
- \* Altitude operating temperature range: UP to 3,000 meters (9,843 ft) above sea level, no derating for 35 °C (95 °F) room temperature
- \* Audible noise:  $< 50$  dBA at 1 meter typical
- \* RoHS compliance: Yes
- \* Safety conformance: UL 1778; IEC 62040-1
- \* EMC: FCC Part 15 Class B; IEC 62040-2 C1 & C2
- \* Markings: CE; cULus; NOM
- \* Battery backup time: 5.8 min@ 630 W, 14 min@ 300W

Line	Qty.	Catalog	
21	1.00	E4504FN	Power cable for E4504FP MR Partial UPS

NOTES:

- Customer is responsible for rigging and arranging for installation with a qualified party
- ITEM IS NON-RETURNABLE AND NON-REFUNDABLE
- Removal/disposal of the old unit is the customer's responsibility.

Application

E4504FN power cable is required when ordering E4504FP MR Partial UPS package.

Line	Qty.	Catalog	
22	1.00	W0301MR	TIP MR 1.5T Training Program

This training program is designed for customers purchasing a GEHC 1.5T MR system. GEHC will work with the designated Customer contact to agree upon a reasonable training schedule for a pre-defined group of core technologists that will leverage blended content delivery and may include a combination of onsite days and virtual offerings, to include TiP Virtual Assist, the GEHC Answerline and available on-demand courses ("Virtual Inclusions"). This blended curriculum with multiple delivery platforms promotes learner retention and allows for an efficient and effective skill development.

This program may contain:

- Onsite training (generally 12 days)
- Virtual Inclusions may include:
- Remote instructor-led training: Instructor leads a remote training session one-on-one or in a group, typically for 1 hour

- Answerline Support-Access to GEHC experts for clinical, non-emergency applications assistance via phone or by using the iLinq button on the imaging console
- Tip Virtual Assist-Direct interactive access to a GEHC expert for enhanced support.
- On Demand courses-On healthcare learning system. Self-paced courses and webinars (CE and non-CE).

Training will be delivered at a mutually agreed upon time between the customer and GE Healthcare (excluding GE Healthcare holidays and weekends), are subject to availability and generally will not exceed 15 days. This training program has a term of twelve (12) months commencing on Acceptance, where all onsite training must be scheduled and completed within twelve (12) months of Acceptance and all Virtual Inclusions also expire at the end of such twelve (12) month period. Additional onsite days may be available for purchase separately.

All GEHC "Training" terms and conditions apply. Given the unique nature of this program, if this program is purchased as part of a purchase under a Governing Agreement, including any Master Purchase Agreement, Group Purchasing Organization Agreement, or Strategic Alliance Agreement, this program shall take precedence over any conflicting training deliverables set forth therein.

Line	Qty.	Catalog	
23	1.00	NI_MR_IN STALLATI ON	\$11,511 is applied to 3rd-Party Rigging Services, as directed by Customer. Rigging (including excess/additional rigging costs) remains the Customer's responsibility. Unapplied rigging funds will be forfeited without refund or credit.

Rigging, De-installation, Installation Charges.  
 Rigging remains the responsibility of Customer.  
 Any rigging costs in excess of this amount shall be the responsibility of Customer.  
 Unapplied rigging funds will be forfeited without refund or credit.

Line	Qty.	Catalog	
24	1.00	NI_MR_IN STALLATI ON	\$11,511 is applied to 3rd-Party Rigging Services, as directed by Customer. Rigging (including excess/additional rigging costs) remains the Customer's responsibility. Unapplied rigging funds will be forfeited without refund or credit.

Rigging, De-installation, Installation Charges.  
 Rigging remains the responsibility of Customer.  
 Any rigging costs in excess of this amount shall be the responsibility of Customer.  
 Unapplied rigging funds will be forfeited without refund or credit.

**Total Quote Subtotal:** **\$1,355,488.40**

Qty.	Credits and Adjustments	
1.00	<b>Trade-in</b>	<b>\$-35,000.00</b>

**Total Quote Net Selling Price:** **\$1,320,488.40**

If applicable, for more information on this devices' operating system, please visit GE Healthcare's product security portal at: <https://securityupdate.gehealthcare.com/en/products>



## Optional Items

Please initial the Catalogs you wish to purchase

Catalog Number	Qty.	Description	Net Price	Initial
S7529SK	1.00	<p><b>BREAST IMAGING WITH 16CH ARRAY FOR 1.5T - NeoCoil</b></p> <p>The breast imaging package combines VIBRANT acquisition with the 1.5T 16ch breast array by NeoCoil to enable imaging and MR-guided biopsy of the breast. VIBRANT delivers simultaneous bilateral breast imaging capability with high spatial and high temporal resolution in either the axial or sagittal plane. In addition, VIBRANT combines dual-shim volume ability with the choice of SPECIAL fat suppression or Flex fat-water separation for robust fat suppression. The 16ch breast coil is designed to be used in conjunction with VIBRANT for imaging the breast, axilla and chest wall at 1.5T. The coil is a phased array with 16-channel receive and is designed to accommodate various anatomic shapes and sizes while providing enhanced SNR and parallel imaging performance. The 16ch breast array supports both diagnostic and biopsy imaging.</p> <ul style="list-style-type: none"> <li>• 3D VIBRANT bilateral axial or sagittal breast imaging</li> <li>• 16-channel breast phased array for 1.5T by NeoCoil</li> </ul>	\$61,200.00	_____
E88221XA	1.00	<p><b>Medrad MRXperion injector on pedestal mount</b></p> <p>The Medrad® MRXperion™ MR Injection System is a smart performer in the MR suite, delivering contrast fluid and data management.</p> <p>Streamlined Injection Workflow</p> <ul style="list-style-type: none"> <li>• Less time preparing for the injection and more</li> <li>• time to focus on the patient and optimize</li> <li>• procedure management.</li> </ul> <p>Convenience at Point of Care</p> <ul style="list-style-type: none"> <li>• On-board eGFR and Weight Based Dosing</li> <li>• Calculators, an Injection Pressure Graph,</li> <li>• Independent Test Inject and KVO functions.</li> </ul> <p>Real-time Support</p> <ul style="list-style-type: none"> <li>• Connect to VirtualCare® Remote Support* for</li> <li>• advanced injector system diagnostics, seamless</li> </ul> <p>Improved Efficiencies</p> <ul style="list-style-type: none"> <li>• Snap-on/Twist-off Syringe Design</li> <li>• Auto plunger advance and retract when attaching and detaching syringes</li> <li>• Automatic filling and priming</li> <li>• Injection/post-injection reminders</li> <li>• Injection pressure graph</li> </ul> <p>Reproducible Quality</p> <ul style="list-style-type: none"> <li>• Proven track record of design and performance</li> <li>• On-site field service and VirtualCare® Remote Support* for advanced injection system diagnostics and real-time support</li> </ul> <p>Personalized Care</p> <ul style="list-style-type: none"> <li>• Patient-Centric workflow design</li> <li>• Protocol storage/retrieval</li> <li>• On-board eGFR and Weight Based Dosing Calculators</li> </ul>	\$51,316.80	_____

- Injection enabled when head is tilted down

The MRXperion™ Injector package includes:

- Dual injector head on pedestal with integral double hook IV pole
- Scan room unit power supply with 40 ft. (12 m) DC cable
- Scan room fiber optic cable – 40 ft. (12 m)
- Control room fiber optic cable - 150 ft. (45 m)
- Fiber optic quick disconnect panel
- Fiber optic penetration panel kit
- Control room unit (display and pod) with hand-switch
- Display and pod power supplies
- CAT5 cable (display to pod) - 1 ft. (0.3m)
- CAT5 cable (pod to hospital network) - 25 ft. (7.6m)
- Power cords - North America and Japan (3 each), 10 ft. (3 m)
- Power cords – International (3 each), 10 ft. (3 m)
- Operators manual (English)
- Multi-lingual Operators manual CD
- Quick guides (English) for injector and hanger
- Installation manual (English)
- Service manual and schematics manual CDs (English)
- Warranty packet
- Installation, customer's operational training at time of installation, and one year full on-site warranty in Bayer service countries
- LAN port for VirtualCare Remote Service

An optional penetration panel filter kit E88221XC is intended to be used for an alternate installation of the power supply of the MEDRAD® MRXperion™ Injection System outside of a MR scan room.

#### System Specifications

##### System Capabilities

- Syringe Capacities:
- Syringe A: 65ml
- Syringe B: 115ml
- Programmable volume range (ml):
- Syringe A: 0.5 ml to max syringe volume in 0.1 ml increments from 0.5 ml to 31 ml, 1ml increments above 31 ml
- Syringe B: 1 ml to max syringe volume in 1 ml increments
- Programmable flow rate range (ml/sec)
- 0.01 to 10 ml/s in 0.01 ml/s increments between 0.01 and 3.1 ml/s
- 0.1 ml/s increments between 3.1 and 10 ml/s
- KVO (Keep Vein Open): 6 factory presets of 0.25 ml every 15, 20, 30, 45, 60 or 75 sec
- Test Inject: configurable from 0.5 ml to 20 ml in 0.1 ml increments
- Pressure range (psi): 6 factory presets from 100 to 325 PSI (690 to 2240 kPa)
- Injection / Post Injection Reminders: up to 5 settings of 1 sec to 20 minutes in 1 sec increments
- Injection protocol storage: 60 protocols up to 6 phases each
- Injection Hold / Pause: up to 20 minutes in 1 sec increments
- eGFR Calculator
- For adults: MDRD, Cockcroft-Gault, Modified Cockcroft-Gault and CKD-EPI methods
- For children: Bedside Schwartz method
- Weight Based Dosing Calculator: user Configurable
- Remote Service Capability: with optional VirtualCare Remote Support

#### Dimensions and Weight

##### Control Room Unit

- 15.58" (39.58 cm) W
- 12.71" (32.28 cm) H
- 10.23" (25.98 cm) D
- 17.6 lbs (8.0 kg)

##### Scan Room Unit

- 23.30" (59.0 cm) W
- 71.40" (181.0 cm) H
- 23.30" (59.0 cm) D
- 95.7 lbs (43.4 kg)

Power Supply

- 7.60" (19.0 cm) W
- 3.40" (9.0 cm) H
- 15.40" (39.0 cm) D
- 5 lbs (2.3 kg)

Electrical

- Voltage Requirements
- 100-240 VAC
- 50/60 Hz
- 120VA - 210VA

Catalog Number	Qty.	Description	Net Price	Initial
E88221XC	1.00	Penetration Panel for MEDRAD MRXperion injector	\$2,160.00	_____

The penetration panel filter kit is intended to be used for an alternate installation of the power supply of the MEDRAD® MRXperion™ Injection System outside of a MR scan room.

Penetration panel filter kit option includes:

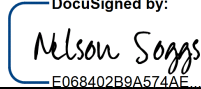
- Filter assembly
- Mounting/centering ring
- Mounting screws
- Conductive O-ring (pre-installed on the filter)
- Power supply cable - 10 ft. (3 m)
- Installation instructions

**Projected Capital Cost Form**  
*Novant Health Thomasville Medical Center MRI Replacement*

Building Purchase Price	NA
Purchase Price of Land	NA
Closing Costs	NA
Site Preparation	NA
Landscaping	NA
Construction/Renovation Contract(s)	\$ 625,000
Architect / Engineering / DHSR Fees	\$ 67,293
Medical Equipment	\$ 1,320,488
Medical Equipment Option 1: Breast Imaging Acquisition and Array	\$ 61,200
Medical Equipment Option 2: Injector	\$ 51,317
Medical Equipment Option 3: Penetration Panel for Injector	\$ 2,160
Non-Medical Equipment	\$ -
Furniture	\$ -
DPS/IT Systems	\$ -
Financing Costs	\$ -
Other: (Trade-In Cost)	\$ 35,000
Other: Contingency	\$ 126,775
<b>Total Capital Cost</b>	<b>\$ 2,289,233</b>

**CERTIFICATION BY A LICENSED ARCHITECT OR ENGINEER**

I certify that, to the best of my knowledge, the projected construction costs for the proposed project is complete and correct.

DocuSigned by:  
  
 E068402B9A574AE...

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Signature of Licensed Architect or Engineer  
 Nelson Soggs, AIA, LEED AP, NCARB; Soggs Design

**CERTIFICATION BY AN OFFICER OR AGENT FOR THE PROPONENT**

I certify that, to the best of my knowledge, the projected total capital cost for the proposed project is complete and correct and that is our intent to carry out the proposed project as described.

DocuSigned by:  
  
 9BCFAC883516459...

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Signature of Officer/Agent

Senior Vice President, Construction & Facilities Svcs, Novant Health  


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 Title of Officer/Agent

**From:** [Kohli, Sonia](#)  
**To:** [Yakaboski, Greg](#)  
**Cc:** [Griffin, Lisa L](#); [Waller, Martha K](#)  
**Subject:** [External] Replacement of Existing MRI Scanner at Novant Health Thomasville Medical Center  
**Date:** Tuesday, August 30, 2022 1:48:02 PM  
**Attachments:** [Novant Health Thomasville MRI REER - 8.29.22.pdf](#)

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**CAUTION:** External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to [Report Spam](#).

Dear Mr. Yakaboski,

Please see the attached document outlining an MRI replacement of an existing MRI scanner at Novant Health Thomasville Medical Center. Please let me know any questions or if there is anything further I can provide.

Thanks!  
Sonia

**Sonia Kohli**

Associate Consultant  
Novant Health | Internal Consulting Group  
843-816-0512  
[skohli@novanthealth.org](mailto:skohli@novanthealth.org)

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