



North Carolina Department of Health and Human Services  
Division of Health Service Regulation  
Certificate of Need Section

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<http://www.ncdhhs.gov/dhsr/>

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June 8, 2012

Lisa Griffin  
Manager, Certificate of Need  
Financial Planning and Analysis  
Novant Health, Inc.  
2085 Frontis Plaza Boulevard  
Winston-Salem, NC 27103

RE: Exempt from Review --Replacement MRI / Presbyterian Orthopaedic Hospital / Acquire a replacement MRI scanner / Mecklenburg County

Dear Ms. Griffin:

In response to your letter of May 16, 2012 the above referenced proposal is exempt from certificate of need review in accordance with N.C.G.S 131E-184(a)(7). Therefore, you may proceed to acquire, without a certificate of need, the Hitachi Oasis 1.2T MRI scanner to replace the existing GE LX-Hi Speed 1.5T MRI scanner, serial number 704370POMR. Presbyterian Orthopaedic Hospital will not be increasing the number of MRI scanners in the Mecklenburg County MRI inventory nor will POH be concurrently operating both MRI scanners. This determination is based on your representations that the MRI scanner will be removed from North Carolina as soon as the permanent replacement is up and running and will not be used again in the State without first obtaining a certificate of need. Further please be advised that as soon as the replacement equipment is acquired, you must provide the CON Section and the Medical Facilities Planning Section with the serial number of the new equipment to update the. In addition, you should contact the Construction Section to determine if they have any requirements for development of the proposed project.

It should be noted that this 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 Agency and a separate determination. If you have any questions concerning this matter, please feel free to contact this office.

Sincerely,

Fatimah Wilson  
Project Analyst

Craig R. Smith, Chief  
Certificate of Need Section

cc: Construction Section, DHSR  
Medical Facilities Planning Section, DHSR





Remarkable People. Remarkable Medicine.

*Fatimah*



May 16, 2012

Fatimah Wilson Program Analyst  
North Carolina Division of Health Service Regulation  
Certificate of Need (CON) Section  
809 Ruggles Drive.  
Raleigh, North Carolina 27603

Re: Replacement Equipment Exemption Request - MRI Scanner at Novant Health's  
Presbyterian Orthopaedic Hospital / Mecklenburg County

Dear Ms. Wilson:

This letter outlines Presbyterian Orthopaedic Hospital's (POH's) project to replace an existing 1.5 T closed-bore magnetic resonance imaging (MRI) scanner with a new 1.2 T open-bore MRI scanner. See Attachment A for the vendor quote. The estimated total cost to acquire and implement the project is \$1,810,669 of which the equipment cost is \$1,313,371. Please note that the vendor pays the freight cost and this is included as part of the total equipment cost in the quote. This project cost does not include: sales, property or excise taxes as POH is a non-profit, tax-exempt organization and is not subject to these taxes. In addition, the expense for on-site training on the new unit for the POH radiology staff is covered by the vendor quote on Pages 21 and 27. The existing equipment is to be removed by Hitachi Medical Systems for an estimated \$4,000 (see the quote in Attachment B). Both the existing equipment and the replacement equipment are comparable medical equipment as explained on the following page. This project should be approved by the Agency as exempt pursuant to N.C.G.S. Section 131E-184(a)(7).

This exempt project will replace a functionally similar equipment item and will not increase the inventory of approved MRI scanners in Mecklenburg County. The existing 1.5 T MRI scanner is used for diagnostic MRI studies at POH and the replacement 1.2 T MRI scanner will be used for diagnostic MRI studies at POH. The proposed new MRI scanner is consistent with the replacement equipment definition at 10 NCAC 03R.0214 (d) which states that the replacement equipment is comparable to the equipment being replaced if it has the same technology as the equipment currently in use, although it may possess expanded capabilities due to technological improvements.

Pursuant to 10A NCAC 14C.0303 the proposed MRI scanner constitutes replacement equipment because:

1. It is comparable to the equipment currently in use. It has the same technology as

the equipment currently in use, although it does possess expanded capabilities due to the technological improvements. Both the 1.5 T MRI scanner and the proposed 1.2 T MRI scanner have been and will be used to produce a wide variety of diagnostic MRI studies.

2. It is functionally similar and is used for the same diagnostic or treatment purposes as the equipment currently in use and is not used to provide a new health service.
3. The acquisition of the new 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.
4. The existing equipment was not purchased second-hand nor was the existing equipment leased.
5. The replacement equipment is not capable of performing procedures that will result in the provision of a new health service or type of procedure that has not been provided with the existing equipment.

Attached for your convenience please find:

- 1) a vendor equipment price quote (Attachment A);
- 2) a vendor quote regarding the removal of the existing open bore MRI scanner (Attachment B);
- 3) project/capital cost schedule which identifies the components of the project costs (Attachment C);
- 4) a certified estimate of related construction costs from an independent licensed North Carolina architect (Attachment D); and,
- 5) the NC CON equipment comparison form summarizing essential information about the proposed equipment purchase (Attachment E).

POH's acquisition of the replacement MRI scanner does not require a certificate of need because none of the definitions of "new institutional health service" set forth in N.C.GS Section 131E-176(16) is implicated. As discussed above, the total cost for the project is \$1,810,669. This is below the \$2 million dollar statutory exemption threshold for replacement equipment. This includes the cost of the equipment, as well as studies, surveys, designs, plans, working drawings, specifications, construction installation and other activities essential to making the equipment operational (such as staff training).

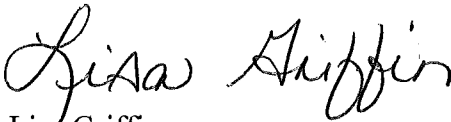
The equipment is being purchased for the sole purpose of replacing the existing MRI scanner once the new scanner is installed. The existing MRI scanner will be taken out of service and will not be used again in North Carolina without appropriate CON approval.

Fatimah Wilson  
May 16, 2012  
Replacement Equipment Request – POH MRI Scanner  
Page 3

In conclusion, based on the information described above, please confirm that POH's replacement equipment request does not constitute a "new institutional health service" and does fit within the replacement equipment exemption definition. Therefore, the project is not subject to certificate of need review.

Please let us know as soon as possible if you need additional information to assist in your consideration of this request. Thank you for your prompt consideration of this request.

Sincerely,



Lisa Griffin  
Manager, Certificate of Need  
Financial Planning and Analysis  
Novant Health, Inc.

Enclosures

cc: Laura MacFadden, Senior Director, Design & Construction, Novant Health

*File: POH MRI REER Cover Letter 05 16 12.doc*

# Attachment A

**HITACHI MEDICAL SYSTEMS AMERICA, INC.**  
 1959 Summit Commerce Park, Twinsburg, Ohio 44087-2371  
 Tel: 330.425.1313 Fax: 330.405.8079

Quotation Number: CRB1247  
 Revision Number: 7  
 Quotation Date: 04/11/2012

**HITACHI**  
 Inspire the Next

**HMSA Quotation for:**

**Presbyterian Orthopaedic Hospital**

1901 Randolph Rd  
 Charlotte, NC 28207

This quotation constitutes Hitachi Medical Systems America, Inc.'s offer to sell the products described herein. Purchaser's agreement to be bound by this offer shall be indicating acceptance of the Terms and Conditions of Sale printed on the reverse side of this page.

**This agreement shall not bind Hitachi Medical Systems America, Inc. until it has been countersigned by an authorized representative in its corporate offices in Twinsburg, Ohio.**

This Quotation is valid: 180 Days  
 Quote Expires: 08/26/2012  
 Sales Representative: Courtney Bowser  
 Phone: (330) 425-1313 x2979  
 Email: bowserc@hitachimed.com

**OASIS HIGH-FIELD BORE-LESS MR**



**Customer Acceptance**

**Hitachi Medical Systems America, Inc.**

By: _____ (signature) Name/Title: _____ Date: _____ Projected Delivery: _____	Submitted by: _____ Date: _____ Accepted: _____ Date: _____
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HMSA is currently scheduling systems for delivery a minimum of 120 days after satisfaction of any contingencies contained in a signed order that has been received and accepted by the President of HMSA.

Presbyterian Orthopaedic Hospital

Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>
OAS-INT3	<p><b>Oasis: High-field Bore-Less MR Imaging</b></p> <p>For You and Hitachi, It's About the Patient. Day in. Day out. High throughput diagnostic performance with uncompromised patient comfort.</p> <p>Oasis brings high speed gradients, multi-channel RF technology, unmatched Zenith™ RF Coils and advanced High Field imaging capabilities to the only truly open architecture high-performance systems ever installed-Hitachi Systems.</p> <p>This powerful 1.2T vertical field MRI delivers image quality for today's high-field applications. Combines uncompromised MR imaging with Hitachi's legendary reliability and responsive service. And offers these advancements on the established Hitachi easy-to-learn and use platform.</p> <p>Patient comfort. Diagnostic confidence. And investment value. The Oasis ownership opportunity is a powerful way to position your imaging abilities as the best in patient care.</p> <p>Unique Oasis features</p> <ul style="list-style-type: none"><li>-PACT™ - Patient Active Comfort Technology</li><li>-1.2T Hitachi High Field Bore-Less Superconducting Magnet</li><li>-HOAST™ - Higher Order Active Shimming Technology</li><li>-High Output Gradient System</li><li>-Zenith™ Radiofrequency System and Zenith Coils</li><li>-Vertex™ Computer System</li><li>-Origin™ V4.0A MR Operating System</li><li>-NeuroSuite</li><li>-OrthoSuite</li><li>-BodySuite</li><li>-VascularSuite</li><li>-Hitachi UltraPlus Customer Support</li></ul>

Presbyterian Orthopaedic Hospital

Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>

**OAS-PAC3 PACT™ - Patient Active Comfort Technology**

Like you, the Hitachi focus is on the patient. Our mastery of patient-focused MR imaging is demonstrated in the PACT feature, delivering patient comfort and operator convenience benefits in concert with diagnostic confidence. The Hitachi-exclusive PACT feature set includes:

- Unobstructed view offered by our truly Open MRI design and 30 degree rotated table - magnet alignment - patients will always have a clear lateral view
- 660 lbs. patient weight limit - the highest in the industry
- 82cm wide table with 20cm lateral (in bore), 222cm longitudinal and 40cm vertical motor driven movement control (lowers to 51cm for easy wheelchair transfer)
- Multiple simultaneous coil connections to minimize setup time
- Patient area lighting to further reduce anxiety
- SoftSound™ Gradient Technology reduces gradient noise without compromising clinical performance
- Constant two-way communication system reduces patient anxiety
- Operator alert (patient initiated) brings attention to the patient even without speaking

The quadrature T/R Body coil provides the transmit capability for the system, as well as offering an alternative receiver coil when surface and volumetric coils cannot be employed.

A full set of custom pads and straps promotes patient comfort and consistent image quality, with a wide range of patients and body habitus'.

The benefits that flow from PACT and the other Oasis patient management features include minimized patient non-compliance, access to MRI for patients who cannot be managed in other scanners, and high patient volumes.

**OAS-MAG3 1.2T Hitachi High Field Bore-Less Superconducting Magnet with HOAST**

At 1.2 Tesla, Oasis is the highest field strength, whole body vertical field magnet. And only the proven experience of Hitachi could bring this high-field performance to you. Hitachi expertise in vertical field magnet design and solenoid coil signal detection delivers outstanding image quality-with no compromise on patient comfort.

The high uniformity of the magnetic field established during installation is maintained by per patient electronic shimming in two stages. Gradient shimming is applied to reduce linear terms, and in addition to this linear shimming Oasis also includes HOAST™ per patient Higher Order Active Shimming Technology and regional shimming. The two levels of shimming enable exquisite RF fat saturation.

Important Oasis magnet features include:

- 1.2T vertical field strength for high SNR
- Iron core for high field strength, uniformity and stability
- Homogeneity: 0.3ppm@35cm DSV(VRMS) for excellent general image quality and RF fat saturation
- 45cm FOV in all axes
- Shimming features including Computer-modeled passive shims placement and per-patient Higher Order Active Shim Technology
- Active magnetic shielding to minimize the 5 Gauss footprint
- Helium only cryogen design (single cryocooler) with refill once every two years with HMSA approved maintenance



Presbyterian Orthopaedic Hospital

Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>

**OAS-HGS3 High Output Gradient System**

Recognizing that a high performance gradient system is key to meeting today's expectations for image quality and resolution, Hitachi equipped Oasis with a powerful gradient system. Capable of strength up to 33 mT/m and slew rate of up to 100 T/m/sec, Oasis' gradient system enables selection of low TR, TE and IET in combination with small FOV, and thin slices. This level of gradient capability also positions Oasis to adapt to changing MR technology and widening applications far into the future. Note that all gradient measurements represented here are single axis (not "effective") and represent x, y and z axis capabilities. Hitachi's SoftSound gradient coil mounting technique reduces acoustic noise without compromising image quality or capability.

Presbyterian Orthopaedic Hospital

Product	Description
OASIS	OASIS HIGH-FIELD BORE-LESS MR

OAS-ZEN3 Zenith™ Radiofrequency System and Zenith Coils

The Hitachi Zenith System is a powerful combination of multi-channel RF technology and Hitachi exclusive Zenith RF coils. Zenith drives excellent image quality, seamless workflow, wide clinical capability and optimized patient comfort. This multi-channel RF system allows simultaneous coil connection for patient comfort and efficiency. And includes RAPID (Hitachi's parallel imaging feature) to reduce scan times and optimize the most comprehensive collection of vertical field RF coils.

Transmit System: An 18kW solid state transmit amplifier ensures sufficient power is available for the broadest range of patient sizes. Oasis' additional power also leaves room for future expansion of MR technology that may require additional RF power. SAR is closely monitored and limited to protect the patient while not needlessly constraining the operator. Oasis' transmit and receiver system is designed for interactive, real-time parameter changes and motion compensation techniques.

Receiver System:

- 8 channel RF receiver system
- 2 coil connection points on the table. Users can plug coils in simultaneously for maximum convenience and patient comfort
- Automatic coil detection ensures the correct coil is in operation for each step of the examination.

Receiver Coils: Oasis' Zenith receiver coils support RAPID parallel imaging as well as conventional imaging modes for maximum clinical flexibility and image quality. These are all Hitachi designs and include features that drive imaging time and quality benefits not available on other equipment.

The standard Zenith receiver coils include:

- 5 Channel RAPID Head - Patient comfort is complemented by an ultra fast, high-resolution Brain imaging capability that drives image quality and workflow benefits.
- 6 Channel RAPID Body - The multi-channel design enables applications from dynamic abdominal scans to cardiac imaging with RAPID parallel imaging.
- 8 Channel RAPID Cervical spine - Volumetric solenoid coil sensitivity and RAPID parallel imaging provide excellent C-spine imaging capability. Even with kyphotic patients.
- 8 Channel RAPID CTL - Optimized to provide the SNR and signal uniformity essential for high quality images of the entire spine. The multi-mode design (C, C-T, T, L) supports RAPID and conventional imaging.
- 6 Channel RAPID Shoulder - The inclusion of a through-arm loop with comfort pads delivers an outstanding axillary penetration capability and coil stability.
- 6 Channel RAPID Knee - The 6-channel Knee coil supports high-resolution acquisitions and provides excellent patient comfort in a compact design. The coil's volumetric solenoid technology enables exquisite orthopedic anatomic detail.

Additional standard Quadrature, Multiple Array and Solenoid coils include:

- MA Flexible Body Large - The quadrature design of this coil delivers excellent abdomen, torso and spine imaging for larger patients.
- MA Flexible Body Extra Large - The industry's largest body receiver coil at 190cm circumference enables collection of diagnostic images from patients at the extreme of the demographic spectrum.
- Integrated transmit/receive - The transmit coil for the system also provides receive capability delivering good imaging results for patients that cannot be imaged with other Oasis RF coils.
- General Purpose Solenoid (Halo coil) - The Solenoid design of this coil delivers good SNR for large joint imaging. The coil can also be used as a Brain coil.

Presbyterian Orthopaedic Hospital

Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>

**OAS-VTX3 Vertex Computer System and Origin MR Operating Software**

From patient registration, through scan planning, scanning, image processing and image management, Oasis' Vertex computer and Origin V4.0A MR operating Software deliver seamless workflow. The Origin Clinical Study Library, Graphical User Interface (GUI), Intelligent Parameter Guidance and Real-time Image Quality Calculator make scan planning a breeze for even the most complex examinations. Simultaneous scan, reconstruction, and multi-tasked image processing keep patient volume high. With Oasis, your operational efficiency is assured.

Vertex Computer/ Origin V4.0A MR Operating System Features:

- Minimal operator interaction - fewer mouse clicks
- Wide 24 inch LCD workspace
- User customized protocols combining multiple sequences and post processing steps are provided, ensuring efficient, easy completion of the most complex imaging tasks
- Permanent Hitachi protocol recommendations are provided for reference or everyday use
- Intelligent Parameter Guidance for quick resolution of parameter selection conflicts
- Basic and Advanced control modes adapt to user experience
- Real time Image Quality Calculator shows impact of parameter changes on relative CNR (Contrast to Noise Ratio) and SNR (Signal to Noise Ratio) prior to scanning
- Real time spatial resolution update shows impact of parameter changes prior to scanning
- Simultaneous scan and reconstruction for seamless workflow
- CD/DVD writer combines patient images with auto launching viewer for patient and referring physician convenience
- Patient data security features including audit trail and user authentication

Interoperability features:

With today's need for Electronic Medical Records, connectivity and informatics in medical imaging are key. DICOM 3.0 compliance is a cornerstone of Oasis' Origin software. Image Storage (SCP/SCU), Query/Retrieve (SCP/SCU), Storage Commitment and Print are all provided. Automatic transfer of image series (transfer on scan or exam completion) is basic to Oasis' Storage feature. Auto store to multiple destinations simultaneously is possible.

Also included is the Workflow Plus™ interoperability suite that enhances productivity by promoting seamless integration of Oasis with a DICOM compliant HIS/RIS. DICOM Modality Worklist (MWL) and Modality Performed Procedure Step (MPPS) are included with Workflow Plus. MWL allows Oasis to query the HIS/RIS for patient demographic and scheduling information and MPPS passed information back about procedures actually performed. Data entry errors are thus minimized, promoting operational efficiency. Workflow Plus also conforms to the IHE SWF-PIR profile.

Oasis supports the DICOM Enhanced MR Image Object which provides more standardized information about the images when transferred to compatible receiving nodes like PACS or workstations. For each DICOM receiving node, Oasis can be configured for MR Image Object, or Enhanced MR Image Object. Secondary capture and transfer of color image data is also supported

Presbyterian Orthopaedic Hospital

Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>

OAS-IMG3

Imaging Suites

Imaging Suites

The powerful, cutting edge Oasis imaging architecture delivers its outstanding clinical imaging benefits through the Imaging Suites. The Oasis standard Imaging Suites include a broad range of acquisition sequences, sequence enhancements and post processing tools. Scanning and processing features are available to meet the clinical challenge in Neuro, Orthopedic, Body, Vascular, Breast, Cancer, Cardiac, and Pediatric imaging.

Unique Imaging Suite Features

**RAPID and RAPID 3D:** Oasis's RAPID Parallel imaging software enables acceleration in slice and/or phase directions, allowing increases in temporal resolution for dynamic imaging, shortened scan times and reduced susceptibility effects for DWI, among many other benefits. The user can employ either a RAPID pre-scan calibrated technique for the fastest possible imaging (typically Brain) or RAPID self calibrating technique that collects calibration data intra-scan for excellent image quality even with physiological motion (typically for abdominal acquisitions). RAPID parallel imaging capable receiver coils are the Oasis standard as well - virtually all of the Oasis coils are designed for use with RAPID.

**RADAR:** (RADial Acquisition Regime) is a powerful tool for collecting motion suppressed images without sedation or excessive patient restraint. RADAR relies on a radial k-space filling technique and its 2D and 3D modes, combinability with fat saturation, T2, FLAIR, STIR, SE, or BASG type contrast plus its application to all coils, anatomy and slice planes nets the most broadly applicable radial feature available in MR imaging.

**RADAR with RAPID :** Combines the versatile RADAR acquisition with RAPID parallel image acceleration for motion artifact free images without an increase in scan time.

**BASG - Balanced SARGE:** Hitachi's BASG pulse sequence is available in 2D and 3D modes, and can be combined with RF fat saturation. BASG delivers high signal to noise bright fluid images, and is ideal for high spatial resolution cardiac, body, orthopedic and neuro imaging applications.

**WE - Water Excitation:** An alternative to CHESSE type fat suppression, useful for dynamic studies and cartilage imaging applications in combination with BASG (Balanced SARGE) or RSSG (RF spoiled SARGE).

**H-SINC RF fat saturation:** Hitachi proprietary RF fat saturation technique. The HOAST feature plus H-SINC Light and Heavy modes ensure users can deliver excellent RF fat suppression uniformity from large to small field of view for a broad range of clinical applications. Heavy mode is designed to address the challenges of Breast and Body applications in particular, while the Light mode is useful in Neuro and orthopedic applications.

**TIGRE™ Fast T1 weighted 3D Gradient Echo sequence with fat suppression** enables the combination of high spatial and high temporal resolution for outstanding dynamic liver and breast imaging.

**TIGRE C:** TIGRE T1 Fat suppressed volume imaging capability for dynamic imaging can be combined with Fluoro triggering and TPEAKS centric k-space ordering. TIGRE C simplifies arterial phase capture for breath-hold liver imaging, shortens breathhold time as much as 20% and boosts SNR for Body and Breast dynamic imaging applications.

**FLUTE™:** Fluoro triggered MRA enables easy, consistent capture of the arterial phase. Users monitor the artery of interest for bolus arrival using real time scanning mode, switching instantly to the 3D diagnostic scan upon arrival. FLUTE with TPEAKS k-space ordering ensures minimal venous contamination.

Presbyterian Orthopaedic Hospital

Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>
OAS-IMG3	<p><b>Imaging Suites</b></p> <p><b>PEAKS, RPEAKS, TPEAKS:</b> Hitachi's centric k-space ordering techniques for MRA ensure easy, consistent capture of the critical arterial phase. Three different implementations provide for maximum clinical flexibility.</p> <p><b>TRAQ™:</b> Time resolved MRA (4D imaging) provides insight into the dynamics of blood flow, enabling effortless depiction of arterial and venous phases, without consideration of bolus timing.</p> <p><b>Diffusion Imaging:</b> The high slew rate gradient system, SS-EPI (Single Shot Echo Planar Imaging), pre-programmed multiple axes acquisitions, and automatic creation of ADC and isotropic images make the Oasis Diffusion imaging capability powerful and workflow oriented.</p> <p><b>HOAST™ (Higher Order Active Shimming Technology):</b> The magnet shim is adjusted on each patient with Oasis to promote excellence in large FOV and off-isocenter RF fat suppression. Body and orthopedic imaging benefit in particular from this important Oasis feature.</p> <p><b>VASC™ Non contrast MRA:</b> For cases complicated by renal insufficiency, users can employ Hitachi's VASC pulse sequence, netting excellent renal and peripheral vessel image quality without a bolus.</p> <p><b>Driven Equilibrium FSE:</b> Provides a method to shorten TR for 2D/3D fast spin echo sequences while maintaining excellent target contrast. The net result is shorter scan time and better patient compliance. The Driven Equilibrium technique also applies to FIR (Fast Inversion Recovery) imaging sequences and can be combined with the RADAR motion compensating technique.</p> <p><b>primeFSE and FIR:</b> Oasis delivers user adjustable bandwidth and direct TE selection for ultimate Fast Spin Echo flexibility. Bandwidth selection enables excellent depiction of anatomy in the presence of prostheses.</p> <p><b>NATURAL™:</b> Patient-specific image quality enhancement algorithm for optimal image uniformity.</p> <p><b>3D-GEIR:</b> Volume gradient echo sequence, delivers enhanced T1 contrast with high grey-white matter differentiation. Isotropic acquired images can be reconstructed in arbitrary planes with the MPR feature with excellent image quality.</p> <p><b>Auto Table Step:</b> makes it easy to set up multi-station scans for extended coverage and Image Stitching can be used to seamlessly join images into a single image with an extended field of view. Stitched images may be exported in a DOCOM compliant format.</p> <p><b>Image Stitching:</b> Contiguous sagittal or coronal images can be joined to provide a seamless extended field of view single image. Stitched images may be exported in a DICOM compliant format.</p>

Presbyterian Orthopaedic Hospital

Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>

**OAS-NST2 NeuroSuite Features**

The vital pulse sequences, acquisition features and post processing tools for high-quality imaging of the brain, head/neck and spinal structures are standard on Oasis. Oasis' powerful gradient system drives short neuro scan times for high throughput.

- Preprogrammed and user customized Head and Spine Protocols
- 5 Channel RAPID Head coil for high SNR and signal uniformity
- Multiple coil plug-in feature promotes patient comfort and technologist efficiency
- RADAR motion compensated imaging technique (all plane, all coil) for uncooperative or infirm patients
- High resolution - 1024 imaging
- Large 45cm FOV (all axes) complemented by HOAST features ability to deliver excellent large FOV RF fat suppression
- Image Centering - places center of prescribed slab at magnet isocenter automatically for best neuro image quality
- Fat Suppression - RF Fat saturation, STIR, Water Excitation
- 3D BASG (Balanced SARGE) sequences for IAC imaging with bright fluid
- High resolution 3D-FSE and Driven Equilibrium 3D FSE for IAC imaging
- Volume acquired datasets can be reconstructed in any plane with MPR (Multi-Planar Reconstruction)
- FLAIR, Fast FLAIR and RADAR FLAIR for CSF suppression
- MR Myelography with 3D-FSE and 3D BASG (with fat suppression)
- Multi-slice Fast Spin Echo supports up to 256 echo train
- Diffusion Weighted Imaging with fat suppressed single shot and high resolution multi-shot techniques and ADC mapping capabilities
- 3D-GEIR volume gradient echo sequence, delivers enhanced T1 contrast with high grey-white matter differentiation. Isotropic acquired images can be reconstructed in arbitrary planes with the MPR feature with excellent image quality.
- Image Stitching: contiguous sagittal or coronal spine images can be joined to provide a seamless extended field of view single images. Stitched images may be exported in a DICOM compliant format.

Presbyterian Orthopaedic Hospital

Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>

**OAS-OST2 OrthoSuite Features**

Only Oasis delivers the very high field strength and truly open architecture enabling exquisite orthopedic MR imaging. Its inherent high SNR potential promotes high spatial resolution critical for orthopedic imaging, and permitting all anatomy to be imaged at isocenter delivers remarkable RF fat saturation.

- Preprogrammed and user customized Upper and Lower Extremity Protocols
- 2D/3D pulse sequences
- RADAR motion compensated imaging technique for uncooperative or infirm patients also minimizes popliteal flow artifacts for knee imaging applications
- Excellent off-isocenter Fat Suppression with the HOAST feature's Regional Shimming capability. Patient's enjoy comfortable wrist and shoulder positioning with no compromise on RF fat saturation
- 6 Channel RAPID Shoulder demonstrates excellent image quality including high SNR labrum depiction with unique "under the arm" loop and RAPID parallel imaging capability
- 6 Channel RAPID Knee coil supports high-resolution acquisitions providing exceptional orthopedic anatomic detail
- Driven Equilibrium FSE enables heavy T2 weighting (increased CNR) with limited scan time
- Fast STIR fat suppression
- Cartilage imaging excels using Water Excitation and BASG (Balanced SARGE) 3D Gradient Echo sequences
- primeFSE's user selectable receiver bandwidth enables exquisite FSE image quality in the presence of prostheses or implants and delivers multi-echo FSE for PD and T2 weighted acquisitions in one sequence
- MR arthrograms benefit from excellent RF fat suppression
- Kinematic imaging support for TMJ studies using RAPID Head coil
- Isocenter positioning promoted by lateral table movement and the extra wide table ensure excellent shoulder and extremity fat saturation and general image quality.
- H-SINC RF fat saturation technique delivers uniform suppression over large to small FOVs

Presbyterian Orthopaedic Hospital

Product	Description
OASIS	OASIS HIGH-FIELD BORE-LESS MR

OAS-BST2 BodySuite Features

The exceptional power of Oasis is demonstrated in this demanding and fastest-growing group of applications. High SNR from the 1.2T magnet and Zenith RF coil technology is complemented by the TIGRE fast, fat suppressed imaging sequence and Hitachi's all coil/all plane motion compensating RADAR technique. 2D and 3D protocols for abdomen, pelvis, MRCP and dynamic liver imaging techniques are all standard.

- Preprogrammed and user customized Body Protocols
- 2D/3D pulse sequences
- Breathing artifact is suppressed for abdominal imaging using Hitachi's RADAR motion compensated imaging technique
- Respiratory triggered techniques benefit from expiratory phase sensing
- Breath hold and free breathing acquisitions supported
- RAPID parallel imaging with 6 Channel Torso/Abdomen coil for fastest scanning while maintaining excellent SNR
- 4 total standard Body imaging coils: Large, Extra Large, RAPID and the T/R Body coil deliver high SNR and broadest patient population support available
- In/Out of phase multi-echo Gradient Echo technique
- Abdominal diffusion weighted imaging (DWI)
- T2 Echo Factor Compensation provides very fast high quality ss FSE imaging
- T/R Body Coil Shim Scan provides consistent image quality for abdominal and cardiac regions
- HOAST - Higher Order Active Shimming Technology drives excellent large FOV fat suppression in all planes.
- TIGRE™ standard fast T1 weighted 3D Gradient Echo sequence with fat suppression enables the combination of high-spatial and high temporal resolution for outstanding dynamic liver and breast imaging.
- TIGRE C: TIGRE T1 Fat suppressed volume imaging capability for dynamic imaging can be combined with Fluoro triggering and TPEAKS centric k-space ordering. TIGRE C simplifies arterial phase capture for breath-hold liver imaging, shortens breathhold time as much as 20% and boosts SNR for Body and Breast dynamic imaging applications.
- Dynamic Liver studies benefit from Oasis's large FOV, uniform fat suppression from the HOAST higher order active shimming feature, and the highly sensitive 6 Channel Torso/Abdomen coil.
- Volume acquired datasets can be post processed with MPR to yield images from any plane.



Presbyterian Orthopaedic Hospital

Product	Description
OASIS	OASIS HIGH-FIELD BORE-LESS MR

OAS-VST2 VascularSuite Features

Conventional 2D/3D TOF and advanced acquisition techniques such as Time Resolved MRA (TRAQ™) and 3D vessel post-processing features provide the tools you need in this fast-growing application segment.

- Preprogrammed and user customized Vascular Protocols
- 2D/3D inflow and bolus methods
- RAPID parallel imaging for fastest scanning while maintaining excellent SNR
- Sloped Slab Profile (SSP) and Magnetization Transfer Contrast (MTC) methods for uniform signal intensity and background suppression
- MRA benefits from 100 T/m/sec slew rate - short TE's are available to minimize intravoxel dephasing
- ECG gating is standard to maximize image quality
- VASC™ Non contrast MRA - Non contrast MRA sequence provides an excellent alternative to bolus MRA for patients with renal insufficiency.
- TRAQ Time resolved MRA provides insight into the dynamics of blood flow, enabling effortless depiction of arterial and venous phases, useful when flow direction is uncertain
- FLUTE Fluoro triggering for easy, consistent arterial phase capture
- PEAKS, RPEAKS, TPEAKS: Hitachi's centric k-space ordering techniques ensure easy, consistent capture of the critical arterial phase. Three different implementations provide for maximum clinical flexibility
- MIP (Maximum Intensity Projection) and Volume Rendered MIP for excellent 3D vessel depiction
- 2D/3D Phase Contrast MRA acquisition and analysis, enables VENC selection from 5 cm/s to 400 cm/s to meet a wide range of clinical needs. Velocity analysis graphs and statistical reports are standard.

OAS-BAT2 Bariatric Imaging Features

Oasis provides unmatched positioning flexibility and accommodation for bariatric patients; delivering the optimal combination of comfort and quality for larger patients.

- Widest patient table (82cm)
- Highest patient weight limit (660lbs)
- Largest Flex Body coil (190cm circumference)
- Large vertical patient gap
- Unlimited lateral opening
- Bariatric scanning protocols optimize image quality

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Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>
<b>OAS-CAR2</b>	<b>Cardiac Imaging Features</b>  Basic cardiac imaging is supported by standard dark blood and bright blood sequences and the standard, 6-channel Body coil. <ul style="list-style-type: none"><li>-Preprogrammed and user customized Cardiac Protocols</li><li>-Cardiac, Peripheral and Respiratory gating system</li><li>-Interactive Scan Control (I-Scan) enables efficient imaging plane selection and real-time image collection with slice position and scan parameter change and update during MR Fluoro acquisition</li><li>-Double/Triple IR FSE pulse sequences for black blood morphological imaging.</li><li>-2D/3D BASG (Balanced SARGE) bright blood sequences support functional analysis</li><li>-RADAR motion compensated imaging technique enables artifact suppressed free breathing acquisitions for uncooperative or infirm patients</li><li>-RAPID parallel imaging with 6 Channel Torso/Abdomen coil for fastest scanning while maintaining excellent SNR</li><li>-Multiphase bright blood imaging</li><li>-Real-time cine review</li></ul>
<b>OAS-BRT2</b>	<b>Breast Imaging Features - complemented by the Optional 8 Channel Breast coil</b>  When coupled with the optional Breast coil, Oasis's standard suite of Breast imaging features delivers excellent image quality and broad capability required for this fast growing and differentiating clinical application. <ul style="list-style-type: none"><li>-Preprogrammed and user customized Breast Protocols</li><li>-RADAR motion compensated imaging technique enables artifact suppressed free breathing acquisitions</li><li>-RAPID parallel imaging for fastest scanning while maintaining excellent SNR</li><li>-TIGRE fast T1 weighted 3D Gradient Echo sequence with fat suppression enables the combination of high-spatial and high temporal resolution for outstanding dynamic bilateral breast imaging.</li><li>-Dynamic Breast studies benefit from Oasis's large FOV and uniform fat suppression from the HOAST higher order active shimming feature.</li><li>-DICOM exportable time intensity curves for Dynamic studies.</li></ul>

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Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>

**OAS-PED2 Pediatric Imaging Features**

Constant patient contact sets Oasis pediatric imaging apart. Parents and technologist can see and communicate with the patient throughout the exam making them more comfortable. Fast scanning and motion reduction acquisitions provide excellent image quality.

- Preprogrammed and user customized Pediatric Protocols
- PACT and the Oasis Open MR geometry provide an ideal pediatric imaging environment, while Oasis' powerful imaging architecture provides high quality and fast scanning
- RADAR motion compensated imaging technique enables artifact suppressed free breathing acquisitions for uncooperative or infirm patients
- General Purpose Solenoid coil (Halo coil) delivers quality imaging and an all around view
- SoftSound™ mechanical gradient noise damping minimizes acoustic noise without constraining acquisition parameters
- RAPID parallel imaging for fastest scanning while maintaining excellent SNR
- Multiple coil plug-in feature promotes patient comfort and technologist efficiency

**OAS-MAGS Magnet Specifications**

Hitachi designed and manufactured for high performance and reliability

- Magnet Type: Superconducting Iron Core
- Field Strength: 1.2 Tesla
- Field Orientation: Vertical
- Shielding: Active self shielding
- 5G Fringe field from isocenter
  - Horizontal: 4.0 m
  - Vertical: 3.3 m
- Gantry Size (L x W x H): 2.7m x 2.5m x 2.1m
- Patient Aperture: 44cm
- Gantry Weight: 29,040 lbs
- Static Field Homogeneity: 0.3ppm @ 35cm DSV (VRMS)
- Shimming:
  - Installation: Computer placed iron shims
  - Patient: Linear plus Higher Order Active Shim Technology (HOAST)
- Cryogen: Helium only
- Refill Frequency: Once every two years with Hitachi Ultra-Plus Customer Support

**OAS-HGSS Gradient Specifications**

Hitachi amplifiers and proprietary eddy current compensation technology delivers imaging excellence in general to advanced applications

- Peak Amplitude: 33 mT/m
- Peak Slew Rate: 100 T/m/s
- Cooling method: Water
- Shielding: Active
- Eddy Current compensation: Computer optimized, with B0 compensation
- Gradient noise reduction: SoftSound mechanical gradient noise dampening

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Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>
<b>OAS-ZENS</b>	<p>Zenith RF System Specifications</p> <p>Powerful transmitter and sensitive receiver electronics ensure the high SNR potential of the Oasis magnet is realized in your imaging results</p> <p>Solid State Transmitter</p> <ul style="list-style-type: none"> <li>-Quadrature transmitter</li> <li>-18 kW Peak Envelope Power</li> <li>-Quadrature Radial type Transmit and Receive Coil</li> </ul> <p>Digital Receiver</p> <ul style="list-style-type: none"> <li>-Eight Independent Channels Standard</li> <li>-Two table-top connection points enable simultaneous coil connections</li> <li>-Ultra low noise figure (0.5dB) coil mounted preamplifiers</li> <li>-Variable Receive Bandwidth (manual or automatic)</li> <li>-RAPID™ parallel imaging capability</li> </ul> <p>Custom Coil and Accessories cabinet</p> <p>A custom designed cabinet providing organization and in-room storage for all standard and optional coils, as well as other accessories such as table pads, straps and test phantoms.</p>
<b>OAS-PTBL</b>	<p><b>Patient Table</b></p> <p>The Oasis patient table width and capacity helps you efficiently manage the most challenging patients</p> <ul style="list-style-type: none"> <li>-Industry best 660 lbs. weight limit</li> <li>-Industry best 82cm wide (moving portion)</li> <li>-2 coil plug-in points</li> <li>-3 axes motorized movement</li> <li>-In-bore lateral movement</li> <li>-Lowers to wheelchair height (19")</li> </ul>
<b>OAS-VTXS</b>	<p><b>VERTEX Workstation</b></p> <p>Fast GUI, simultaneous scan and reconstruction drive high workflow efficiency</p> <ul style="list-style-type: none"> <li>-Host CPU: Core2Duo</li> <li>-RAM: 3 GB</li> <li>-Operating System: Windows based, mouse driven intuitive GUI</li> <li>-Ethernet Interface: 10/100/Gigabit Auto-sensing</li> <li>-High Resolution monitor: 24 inch LCD color monitor</li> <li>-Operator input: Mouse and QWERTY keyboard</li> <li>-Magnetic disk: 3.5 inch 320 GB storage capacity, capable of holding 400,000 images at 256x256 matrix</li> <li>-Image storage: DVD writer for image data storage. Reliable DVD-R/+R 4.7GB media stores up to 30,000 images</li> <li>-Intercom: Two way patient - operator</li> <li>-System controls: Start scan, pause scan, abort scan, emergency stop</li> <li>-Security Features: User Authentication, Automatic Logout and Audit Log</li> </ul>

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Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>

**OAS-PS3 Pulse Sequences**

General to advanced, the acquisition sequences you need to meet the clinical challenge

- Spin Echo (SE) with up to 4 echoes
  - RADAR-SE for motion compensated T1 imaging
- 2D/3D Gradient Echo (GE) and Multi-Echo Gradient Echo
- Inversion Recovery (IR)
  - FLAIR
  - STIR
- 2D/3D Fast Spin Echo (FSE)
  - Echo Factors (ETL): 2-256
  - User defined Inter Echo Spacing, TE
  - User defined Echo allocation including Centric, Anti-centric, ADA, and Sequential
  - Single Shot FSE-Ultra fast acquisition, Ultrahigh Echo Factor for MRCP, MR Urography, and MR Myelography
  - Driven Equilibrium- Increases SNR and Contrast over conventional FSE without increasing TR.
  - RADAR radial k-space acquisition
  - primeFSE - uses centric k-space ordering feature enables an SNR increase over conventional methods, user selectable receiver bandwidth and excellent multi-echo (PD and T2 weighted) FSE imaging
- Fast Inversion Recovery (FIR)
  - Echo Factors: 2-256
  - Inversion Time: 20-8000 enables Fast STIR, Fast FLAIR imaging
  - Driven Equilibrium
  - primeFIR
  - RADAR radial k-space acquisition
  - Double and Triple IR Black Blood acquisitions
- Steady-State Acquisition Rewound Gradient Echo (SARGE SG)
  - RF-Spoiled SG- (RSSG) provides T1 weighting
  - Rephased SG -Flow compensation for reduced artifacts
  - Balanced SG (BASG) -Completely balanced SG provides high SNR and bright fluids in a rapid acquisition.
    - RF fat saturation
    - Phase-cycled fat suppression cardiac imaging
    - RADAR - BASG for motion compensated abdominal and cervical spine imaging
  - Time Reversed SG (TRSG)- T2 weighted Fluoro acquisition
- Diffusion Weighted Imaging (DWI)
  - Single Shot SE EPI
    - B-Factor: 0-2000
    - RF Fat Saturation
    - IR pulse
- TIGRE - 3D T1 Gradient Echo
  - Fast gradient echo with optimized fat suppression for dynamic breast and abdomen imaging
- TIGRE C - combined with Fluoro triggering and TPEAKS for liver imaging
- 2D/3D TOF
  - High contrast blood flow visualization
  - Combine with pre-saturation to image arteries or veins
  - Single slab or multi-slab (3D)
- VASC Non-contrast MRA
  - Bright fluid BASG sequence with walking pre-sat
- Phase Contrast MRA (PC-MRA)
  - Velocity Encode: 5-400 cm/sec. increment 1 cm/sec
  - No contrast agent

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Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>
OAS-ACQ3	<b>Acquisition Features and Protocol Enhancements</b>  Scan fast and deliver excellent results using these pulse sequence enhancements and features designed to minimize artifacts and increase ease-of use  -Image Plane Selection -Transverse, Sagittal and Coronal -Single and Double Oblique -Multi-slice, Multi-angle -Radial for simplified MRCP, Knee acquisition planning -Multi-plane for combined Sagittal, Coronal, Axial acquisition (SC, SCA, CA, or SA) -Interactive Scan Control (I-Scan) enables efficient imaging plane selection and real-time image collection with slice position and scan parameter change and update during MR Fluoro acquisition  -Prescan -RF power adjustment -Center Frequency -Volume Shim adjust  -User Defined Regional Shim  -Fat Suppression Techniques -Water Excitation (Binomial technique) -Graphical presentation of fat-water peaks -Graphical prescription of RF fat suppression frequency -RF fat saturation (conventional SINC pulse) -H-SINC RF Fat Saturation (Light mode for lipid only, Heavy for lipid and olefinic suppression) -STIR, Fast STIR (FIR) -In/out of phase GE  -Motion Compensation -RADAR Radial Acquisition (FSE, FIR, FLAIR, SE, BASG) -Gradient Rephasing -Presaturation Pulses-up to eight -Walking Presaturation -Cardiac Gating with Arrhythmia Rejection -Peripheral Pulse Gating with Arrhythmia Rejection -Respiratory Gating -Diaphragm Navigation Echo -Intermittent Presaturation  -User defined Variable Bandwidth -Dual Slice Acquisition -Rectangular Field of View -Anti-aliasing -User defined inter-echo spacing -Half Scan and 3/4 scan -Half Echo -Asymmetric Measurement Imaging (AMI) -Real time image quality indicator (relative CNR, SNR) -Real time spatial resolution update shows impact of parameter changes prior to scanning -Silent Mode gradient noise reduction scan mode -Image Centering - places center of prescribed slab at magnet isocenter automatically for optimal image quality -Auto Voice -Coil mode search optimizes SNR when multiple coils are used simultaneously -NATURAL™ image quality enhancement algorithm -Dynamic Scan Time Table Window provides graphical review of dynamic scan procedure (steps and timing) for easy and efficient study planning

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Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>
OAS-IPT3	<p>Image Processing Tools</p> <p>Maximize image quality and workflow efficiency with these multi-tasked tools and features. Most are combinable with scanning keep interaction requirements to a minimum</p> <ul style="list-style-type: none"> <li>-Maximum/Minimum/Average Intensity Projection (MIP)                             <ul style="list-style-type: none"> <li>-Sliding and expanding MIP capabilities</li> <li>-MRA post processing tool</li> <li>-Freehand, Elliptical, and Rectangular Cropping</li> <li>-Include/Exclude mode</li> <li>-Sliding, Expanding mode</li> </ul> </li> <li>-Multiplanar Reconstruction (MPR)                             <ul style="list-style-type: none"> <li>-Parallel cut</li> <li>-Parallel slant cut</li> <li>-Radial cut</li> <li>-Curved</li> </ul> </li> <li>-Vascular Volume Rendering                             <ul style="list-style-type: none"> <li>-Radial, Sliding, and Expanding Projection modes</li> <li>-Opacity setting</li> </ul> </li> <li>-Filtering Tools                             <ul style="list-style-type: none"> <li>-Adaptive imaging filter</li> <li>-Edge Enhancement</li> <li>-Image Mask</li> <li>-IQ2 k-space signal processing</li> </ul> </li> <li>-Image addition and subtraction</li> <li>-Calculated Images (Proton Density, T1 and T2)</li> <li>-Dynamic analysis                             <ul style="list-style-type: none"> <li>-Multiple graph modes include: Normalized Signal Intensity time graph, Multiplicative Signal Intensity-time graph, and Signal Intensity change rate-time graph</li> <li>-Multi-slice support</li> <li>-DICOM exportable</li> </ul> </li> <li>-Diffusion Analysis                             <ul style="list-style-type: none"> <li>-ADC map</li> <li>-Isotropic DWI map</li> <li>-DICOM exportable</li> </ul> </li> <li>-Image Review Tools                             <ul style="list-style-type: none"> <li>-Unlimited series review</li> <li>-Flexible window layout</li> </ul> </li> <li>-Filming Tool with configurable layouts</li> </ul>

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Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>
OAS-IPT3	<p>Image Processing Tools</p> <ul style="list-style-type: none"> <li>-Viewport Tools                             <ul style="list-style-type: none"> <li>-Maximize/Resize</li> <li>-WW/WL</li> <li>-Magnify</li> <li>-Rotate/Reverse</li> <li>-Cine Tool</li> <li>-Comment/Annotate</li> <li>-ROI (circular or rectangular)</li> <li>-Measuring functions</li> <li>-Statistics</li> <li>-Overlay</li> <li>-Layout</li> </ul> </li> <li>-Protocol/Task management                             <ul style="list-style-type: none"> <li>-Windows Explorer style</li> <li>-Protocol editing without loaded study</li> <li>-Categorized Anatomic Protocol Library</li> </ul> </li> <li>-System Tools                             <ul style="list-style-type: none"> <li>-Job Queue</li> <li>-Stopwatch</li> <li>-Waveform Display</li> <li>-Patient Table settings</li> <li>-System Settings</li> </ul> </li> </ul>
OAS-HE3	<p><b>Echelon/Oasis Heat Exchanger</b></p> <p>Provides isolation of Oasis and Echelon gradient coil, gradient amplifier and magnet cryocooler cooling loops from the chilled water source for maximum reliability. Monitoring circuits and signals for flow and temperature condition are provided and interfaced with the MR imaging system.</p>
HF.COILCAB	<p><b>HIGH FIELD COIL CABINET</b></p> <p>Echelon and Oasis include an attractive custom designed cabinet that provides organization and in-room storage for all standard and optional coils, as well as other accessories such as table pads, straps and test phantoms</p>
HF.CHILLER.PL	<p><b>HASKRIS CHILLER</b></p> <p>Oasis-Echelon Chiller:</p> <p>Provides a chilled water source for Oasis and Echelon's in those cases where no chilled water source is available. A compact design and outdoor installation minimizes installation requirements.</p>
1.2-AUTOSTEP.PL	<p><b>OASIS AUTO TABLE STEP</b></p> <p>Enables user program of table increment for multi-stage imaging. Complete spine studies are programmable and can be executed from the operator console.</p>



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Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>
1.2- ADVNEURO.PL	<b>OASIS ADVANCED NEUROSUITE SOFTWARE</b>  Advanced NeuroSuite delivers additional clinical capabilities with ultra fast sequences to probe tissue intensity dynamics. Post processing analysis tools yield mean transit time, relative cerebral blood flow, and relative cerebral blood volume maps.  Pulse Sequences Multislice 2D Susceptibility Acquisition Multislice 2D SE EPI pulse sequence Multislice 2D RSSG EPI pulse sequence for FLAIR contrast  Processing Mean Transit Time (MTT) Map Relative Cerebral Blood Flow (rCBF) Map Relative Cerebral Blood Volume (rCBV) Maps
1.2- WORKFLOW.PL	<b>WORKFLOW PLUS</b>  The Workflow Plus interoperability suite enhances productivity by promoting seamless integration of Oasis with a DICOM compliant HIS/RIS. Workflow Plus gives Oasis IHE Scheduled Workflow/Patient Information Reconciliation profile support, enabling study status flagging to and query of a patient worklist from the HIS/RIS. Data entry errors are thus minimized, promoting operational efficiency.  WORKFLOW PLUS™ adds the following DICOM Service Classes:  -Modality Worklist Management (MWL) Support of this service class enables the MR system to access scheduled patient information from a DICOM 3.0 compliant hospital or radiology information system, potentially enhancing patient throughput and reducing data entry errors.  -Performed Procedure Step Works in concert with Modality Worklist Management to update study status from the MR system to the hospital or radiology information system (HIS/RIS).
1.2-WRIST.PL	<b>OASIS RAPID Multi Array Wrist Coil</b>  3 Channel RAPID Wrist Large enough to support a broad patient demographic, the wrist coil's solenoid design delivers very high spatial resolution at high SNR. This coil supports RAPID and conventional imaging modes.

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Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>
GEN-IV.PL	<p><b>MRI MUSIC SYSTEM</b></p> <p>Magnacoustics Genesis IV MRI Music System</p> <p>The optional patient music system consists of the following features:</p> <ul style="list-style-type: none"> <li>- Active volume compensation (Auto Gain) changes volume automatically to mask MR gradient sounds.</li> <li>- DSP technology provides the highest sound quality available for the patient.</li> <li>- Patient volume and music selection controls with voice feedback for maximum comfort, assurance, and distraction.</li> <li>- Multi Disc CD Changer, AM/FM tuner, iPod interface</li> <li>- Backlit Technologist Control Unit allows operation of the entire system with a touch of the button.</li> <li>- Patented - Magnetically Inert RF Shielded Stereo Pneumatic Transducer.</li> <li>- Technologists Sound System.</li> <li>- Patented pneumatic headsets providing attenuation. Both "stethoscope" and "muff" style headphones included.</li> <li>- Interface to MR system console for proper mixing of music and two-way voice communication.</li> </ul>
WAR-1.2-12.PL	<p><b>12 MONTH ADDITIONAL WARRANTY FOR A TOTAL OF 24 MONTHS</b></p> <p>12 MONTH ADDITIONAL WARRANTY</p>
* MR-BIOMED.TRAVEL	<p><b>BIO-MED TRAVEL &amp; LODGING FOR TWO (2) PEOPLE</b></p> <p>Travel and Lodging for Bio-Med training sessions. This is for one person and the fare is based on flying coach class to Cleveland, OH.</p>
MR-BIOMED.TUITION	<p><b>BIO-MED TUITION FOR TWO (2) PEOPLE</b></p> <p>Class participants will gain an understanding of all system components and functions, system adjustments, and scheduled maintenance activities. All technical documentation from the manufacturer will be provided during training.</p> <p>Upon completion of the training the trainee will be able to perform all scheduled maintenance and routine adjustments independently and troubleshoot system problems under the direction of an experienced engineer.</p> <p>The classroom training is in Twinsburg, OH.</p>
ALLOW-MISC	<p><b>ALLOWANCE: MRI Compatible, Non-Magnetic Patient Table and Wheel Chair</b></p> <p>HMSA will provide an allowance not to exceed the quoted Allowance UNIT LIST PRICE to be used by the Customer. Provided no monies are then due and owing to HMSA, upon receipt by HMSA of final system payment, HMSA will promptly reimburse the Customer for actual costs up to the quoted Allowance UNIT LIST PRICE. (Note: all Allowances are subject to sales tax)</p>

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Product	Description
<b>OASIS</b>	<b>OASIS HIGH-FIELD BORE-LESS MR</b>
<b>MR SALES.TERMS</b>	<p><b>MR Sales Terms &amp; Conditions</b></p> <p>1. Acceptance; Modifications.</p> <p>1.1 Definitions of Products. "Products" means those magnetic resonance imaging instruments sold to Purchaser under this Agreement.</p> <p>1.2 Final Acceptance; Entire Agreement. All orders placed pursuant to this Quotation shall be subject to the final acceptance in writing by a duly authorized representative of Hitachi Medical Systems America, Inc. ("HMSA") at its office address as set forth on the first page of this Quotation. The terms and conditions of this Quotation and HMSA's written acceptance thereof (the "Agreement") shall constitute the complete agreement between the parties, reflecting their entire understanding as to matters related hereto and supersedes any prior oral or written statement or agreement. No term or condition of the Purchaser's order which is different from or in addition to the terms and conditions as set forth in the Agreement shall be binding on HMSA unless, and only to the extent, such different or additional term or condition is expressly accepted by HMSA in writing. In the event of any inconsistency between the terms set forth in any of Purchaser's documents and these terms and conditions, the terms and conditions set forth in this Agreement shall control.</p> <p>2. Price; Terms of Payment.</p> <p>2.1 Quotes Prices; Transportation. All quoted prices are F.O.B. Port of Entry stated shipping point, unless otherwise specified, and include domestic packaging and are subject to correction for error. Transportation shall be by means that are commercially reasonable and customary and at the Purchaser's expense.</p> <p>2.2 Taxes. Prices do not include local, state or federal taxes. Consequently, the amount of any sales, use or similar tax applicable to the sale of the Products herein or to the use of such goods by the Purchaser shall be paid by the Purchaser. If HMSA is required to collect or pay any such tax, Purchaser shall reimburse HMSA promptly after demand for such tax payment and for any associated expenses.</p> <p>2.3 Payment. Unless otherwise agreed in writing, Payment is due upon receipt of invoice with no discount allowed for early payment. Invoices shall be issued upon shipment. In the event shipment is delayed beyond the date (if any) stated in the Quotation for any reason not attributable to HMSA's ability to ship the Product, any payment due upon shipment, delivery, or installation shall be made on the originally scheduled shipping date. Past due invoices are subject to a monthly service charge at a rate equal to the lesser of 1-1/2% per month or the maximum rate from time to time permitted by applicable law. Should any terms of payment provide for either full or partial payment upon installation or completion of installation or thereafter, and installation is delayed for any reason for which HMSA is not responsible, the Products shall be deemed installed upon delivery. In no event shall Purchaser be entitled to withhold payment for undelivered accessories or options in an amount which exceeds the lesser of (a) the quoted purchase price for the subject option or accessory and (b) in the event the purchase price for such accessory is not separately quoted, HMSA's published price for such item.</p> <p>3. Credit Terms; Security Interest; Purchaser Default</p> <p>3.1 Credit; Security Interest. To induce HMSA to extend credit to the Purchaser, the Purchaser hereby grants HMSA a purchase money security interest in the Products supplied hereunder, and the Purchaser authorizes HMSA to file a Uniform Commercial Code financing statement with respect to the Products prior to shipment.</p> <p>3.2 Deposits. Any deposit made by the Purchaser with respect to Products is nonrefundable except to the extent HMSA fails to deliver the Products and such failure does not result from a breach of Agreement by the Purchaser or other wrongful act or omission of the Purchaser.</p> <p>3.3 Purchaser Default. If default is made in any of the payments herein, the Purchaser agrees that HMSA may retain all payments which have been made on account of the Total System Price to 30% of the Total System Price, as liquidated damages and HMSA shall be entitled to the immediate possession of the Products and shall be free to enter the premises where the Products may be located and remove same as HMSA's property, without prejudice to its right to recover any further expenses or damages it may suffer by reason of such nonpayment.</p>

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Product	Description
OASIS	OASIS HIGH-FIELD BORE-LESS MR

MR  
 SALES.TERMS

MR Sales Terms & Conditions

4. Warranty

4.1 Warranty. Except as hereinafter provided, HMSA warrants all Products and parts supplied by HMSA to be free of defects in design, material and workmanship for a period of 12 months. The warranty period shall begin upon completion of installation or first use, whichever occurs first. If a failure occurs during the warranty period, and there is no evidence of misuse, abuse, neglect or unauthorized alteration or repair as Purchaser's sole and exclusive remedy, HMSA will repair, replace or correct, at its option, the defective item without charge for parts and labor. THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. HMSA'S WARRANTY DOES NOT APPLY (i) IF PRODUCTS HAVE BEEN SUBJECT TO MISUSE, MISHANDLING, MISAPPLICATION, NEGLIGENCE (INCLUDING, WITHOUT LIMITATION, IMPROPER MAINTENANCE), ACCIDENT OR MODIFICATION NOT EXPRESSLY AUTHORIZED BY HMSA (INCLUDING, WITHOUT LIMITATION, USE OF UNAUTHORIZED PARTS OR ATTACHMENTS) OR IF ANY ADJUSTMENT OR REPAIR HAS BEEN PERFORMED BY ANYONE OTHER THAN HMSA OR AN AUTHORIZED SERVICE REPRESENTATIVE OF HMSA AND (ii) TO PERISHABLE AND OTHER MATERIAL SUBJECT TO CONSUMPTION AND WEAR INCLUDING, WITHOUT LIMITATION, RADIO SENSITIVE FILM AND PAPERS, WHICH ITEMS BEING SUBJECT ONLY TO SUCH WARRANTIES AS MAY BE SPECIFIED IN WRITING BY HMSA AT THE TIME OF DELIVERY TO THE PURCHASER. HMSA makes no warranty with respect to the accessory items set forth as "third party accessory" on the face hereof. The warranty for such items shall be as provided by the manufacturer thereof.

4.2 Sole Obligation; Notice. HMSA's sole and exclusive obligation under this warranty is limited to the repair or replacement of defective parts. This warranty is made on condition that prompt notice of any defect is given in writing within the warranty period and that HMSA's inspection does not disclose any invalid claim.

4.3 Returned Products. Goods shall not be returned to HMSA without written authorization. All authorized returns must be properly packaged with transportation charges prepaid by the Purchaser.

5. Damages; Limitation of Action

5.1 Damages. HMSA's liability arising out of or relating to this agreement shall not exceed the amounts paid by Purchaser to HMSA for the Products. HMSA shall not be liable for special, incidental or consequential damages. Consequential damages shall include, without limitation, loss of use, income or profit or loss of or damage to persons or property.

5.2 Limitation of Action. No suit or other proceeding may be brought on an alleged breach of warranty of HMSA set forth in this Agreement more that twelve (12) months after termination of such warranty.

6. Shipment and Risk of Loss

Unless otherwise specified in writing by a duly authorized representative of HMSA, delivery shall be made F.O.B. Port of entry shipping point, and any reference in these terms and conditions to "deliver" shall refer to such delivery. Except for obligations stated under 4.2, HMSA's responsibility ceases upon delivery to the carrier at the stated shipping point, and risk of loss, damage, injury or destruction to any of the goods shall pass to the Purchaser upon such delivery to the carrier. In no event shall any loss, damage, injury or destruction operate in any manner to release the Purchaser from the obligation to make payments required herein. Unless otherwise agreed in writing, HMSA reserves the right to make partial shipments and to submit invoices for partial shipments.

7. Changes and Cancellations

Orders accepted by HMSA are not subject to changes or cancellation by the Purchaser except with HMSA's written consent. If Purchaser cancels this Agreement within ninety (90) days prior to delivery of the Products, Purchaser shall pay HMSA a cancellation charge of fifteen percent (15%) of the Total System Price. HMSA shall retain as credit all progress payments made to that point towards this cancellation charge. If Purchaser cancels this Agreement prior to this ninety (90) day period described above, all progress payments which have been made to that date, but not to exceed fifteen percent (15%) of the Total System Price, will be held as cancellation charge.

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Product	Description
OASIS	OASIS HIGH-FIELD BORE-LESS MR
MR SALES.TERMS	MR Sales Terms & Conditions

8. Delivery and/or Installation Dates

Delivery and/or installation schedules are approximate and are based on conditions at the time of acceptance. HMSA will make every reasonable effort to complete shipment and/or installation as indicated but assumes no liability of any kind by reason of delay or inability to ship or install were such is caused by acts of God, fires, floods, war, embargoes, labor disputes, strikes, acts of sabotage, riots, with facilities, or any accidents, delays of carrier, subcontractors, suppliers, voluntary or mandatory compliance any other cause or causes beyond HMSA's reasonable control. In such event, HMSA may extend delivery and/or installation schedules or may, at its option, cancel the order in full or in part without liability other than to return any deposit or prepayment which is unearned by reason of the cancellation.

9. Installation; Additional Charges

9.1 Installation by HMSA. Unless otherwise expressly stipulated, the Products shall be installed at the expense of HMSA. HMSA shall cause the products to be installed and connect same to the requisite safety switches and power lines to be installed by the Purchaser. Prices shown include the cost of installation and connection, provided that the installation and connection can be performed during normal business hours as HMSA, in its sole discretion, shall determine. Any overtime charges or other special expenses as required by the Purchaser will be subject to additional charges. The Purchaser shall be responsible for all necessary arrangements with the trade union, or unions, involved to permit HMSA to install the Products. If for any reason, assembly or installation must be performed by other than HMSA service personnel or agents, additional charges will be made for the cost of such outside labor. The cost of rigging and any cranes necessary to move or install the Products and the cost of disposal of all packing materials associated with the Products shall be borne by the Purchaser.

9.2 Materials; Labor; Access to Premises. Purchaser shall, at its own expense, provide all site preparation, including without limitation, necessary labor and materials, plumbing service, carpentry work, conduit wiring and other electrical service required for such installation and connection. All such labor and materials shall be completed and available at the time of delivery of the Products by HMSA. Additionally, the Purchaser shall provide unrestricted access to the Purchaser's premises for installation, and, if necessary, safe space thereon for storage of the Products prior to installation by HMSA. If special work of any type must be performed in order to comply with requirements of any governmental authority, including procurement of special certificates, the same shall be performed and/or procured by the Purchaser at the Purchaser's expense.

10. Title. Except as otherwise agreed in writing, title to the Products or any part thereof shall pass from HMSA when all payments due herein have been fully made. The Products shall be and remain personal or moveable property, notwithstanding their mode of attachment to realty or property.

Presbyterian Orthopaedic Hospital

Product	Description
OASIS	OASIS HIGH-FIELD BORE-LESS MR
MR SALES.TERMS	MR Sales Terms & Conditions

11 Indemnification. Purchaser agrees to indemnify, defend and hold harmless HMSA from and against any and all claims for relief, rights or causes of action whatsoever arising from or relating to damages or personal injuries to an employee where such damages or personal injuries arise from or relate in any way to the use by the employee of any Products being purchased pursuant hereto, including, without limitation, any Software, together with all manuals, drawings, and technical information which describes such Software or demonstrates how to use or modify such Software to operate the Products. To the extent necessary to give full and complete effect to this agreement to indemnify, Purchaser for itself and for its agents, successors and assigns, specifically and expressly waives whatever immunity from liability it might be afforded under Section 35, Article II of the Ohio Constitution, Ohio Revised Code Section 4123.74 and any and all other immunities afforded by constitutional provisions, statutes, and common law principles currently recognized or that may from time to time be recognized in Ohio and all other states throughout the United States.

12. Notice. Any notice required or permitted to be given under this Agreement shall be considered sufficient if delivered personally or mailed via certified mail. Such notices directed to HMSA shall be delivered or sent to its office address set forth on page one of this Agreement to the attention of the President. Notices to the Purchaser shall be sent to the address shown on the first page of the Quotation. Notices to either HMSA or the Purchaser may be sent to such other address as either party may give to the other from time to time pursuant to this provision.

13. Severability. If any provision in the agreement shall be found to be void or unenforceable, that provision only shall be deemed stricken to the extent of its invalidity or unenforceability, and all other terms and conditions shall remain in full force and effect.

14. Assignment. This Agreement shall be binding upon HMSA and the Purchaser and shall inure to their benefit and to their successors and permitted assigns. This Agreement may not be assigned by Purchaser in whole, or in part, to any third party without the express written consent of HMSA which will not be unreasonably withheld. HMSA may, however, require any proposed assignee to reimburse it for any of its reasonable costs associated with such assignment, and to supply it with such information and to make such representations as HMSA deems appropriate for its protection.

15. Construction; Jurisdiction. Any suit directly or indirectly involving this Agreement, including but not limited to the actions of HMSA's employees, representatives or agents, whether arising before, during or after the term of this Agreement, must be filed solely in a federal or state court located in Ohio. This is a mandatory forum selection clause. Jurisdiction over claims arising, directly or indirectly, from the matters covered by this Agreement is proper exclusively in Ohio courts. Venue is proper only in courts located in Cleveland, Ohio. The parties to this Agreement consent to Ohio courts exercising: (a) personal jurisdiction over the parties; and (b) subject matter jurisdiction over any dispute arising from this Agreement. All parties further consent to venue exclusively in Cleveland, Ohio, even if one or more parties to the Agreement have no contact with the selected forum in Cleveland, Ohio. Consent to Ohio courts having sole jurisdiction and venue over disputes involving HMSA is a material inducement for HMSA to enter into this Agreement and, without this consent HMSA would not enter into this Agreement because HMSA's contact with forums outside Ohio is more limited and less convenient than HMSA's contact with Ohio. By entering into this Agreement, the parties acknowledge that they are conducting business in the State of Ohio. Ohio law shall control, govern, and apply in all disputes arising from this Agreement, which shall be construed in accordance with the laws of the State of Ohio. Headings used throughout this Agreement are used for the convenient reference of the parties and are not intended to limit or modify the express terms of the Agreement. Each party hereby appoints each officer of HMSA as its agent for accepting any process in Ohio.

16. Export Restrictions. This sale concerns products and/or technical data that may be controlled under U.S. Export Administration Regulations and may be subject to the approval of the U.S. department of Commerce prior to export. Any export or re-export by the purchaser directly or indirectly in contravention of the U.S. Export Administration Regulations is prohibited.

REV. 6/27/07

## STANDARD QUOTATION TERMS AND CONDITIONS

1. Refer to Sales Terms and Conditions section in the Specifications portion of the quotation for complete terms and conditions.
2. Quotation is valid for 45 days from the date of issue.
3. Customer is responsible for providing all site preparation (i.e., RF shielding, electrical power, support structure, etc.) necessary for installation of the equipment.
4. Oasis system includes monitoring electronics and heat exchanger for system cooling. An optional chiller is available based on specific site needs.
5. While HMSA will use its best effort to deliver all purchased options with the system, Purchaser agrees that availability, or lack thereof, of a specific option will not hold up acceptance or any progress payments on the remainder of the system.
6. The customer is responsible for its compliance with any applicable local or state laws and regulations that may be applicable to the purchase and/or installation of the equipment quoted herein.
7. The price as quoted is only valid if the attached Service Maintenance Agreement is signed at the time of equipment purchase. The SMA must be for a full five years after any applicable system warranty expires.

## MODIFICATIONS/ADDITIONS TO STANDARD TERMS AND CONDITIONS:

8. Shipping is F.O.B. Destination.
9. Payment Terms
  - A) \$ 0 Deposit is due with the signed order.
  - B) Eighty percent (80%) due at delivery, Net forty-five (45) days, and
  - C) Twenty percent (20%) due thirty (30) days after acceptance for all Products
10. This quotation prepared in reference to Novant Health standard terms and conditions.
11. Any discrepancies between this quotation and the Novant Health standard terms and conditions, the Novant Health standard terms and conditions will supercede the quotation.
12. Pricing is valid only if purchaser is a registered Novation alliance member at time of quotation acceptance.
13. This order is contingent on the following:
  - State CON Approval

## VALUE ADDING SUPPORT BENEFITS

Echelon and Oasis customers covered by an Ultra Plus Customer Support or warranty agreement enjoy exclusive benefits from a range of value adding support features. From maximizing equipment uptime, through maintaining optimal image quality from patient to patient, to helping you market your MR imaging service, you'll find Hitachi delivers benefits not found anywhere else:

## CLINICAL SUPPORT

## \* On-site Applications Training

Echelon and Oasis customers will receive two weeks of initial training (Monday through Friday, including travel time). Hitachi applications personnel will be present on Monday of the first week with your local Customer Service representative to confirm the performance of your system prior to starting applications training. Formal training of your technologists will begin on Tuesday morning.

Training topics include:

- MR magnet safety
- Hitachi MR System operation
- Patient positioning
- RF coils

ASRT Continuing education credits (CEUs) will be awarded to all technologists that are involved in at least 24 hours of scanning procedures during applications training.

## \* Follow-up Applications Training

Follow-up applications training visits will be provided during the warranty period at no additional charge. The first follow-up applications visit is usually scheduled to occur within 8-12 weeks after initial training. The follow-up applications training visit will provide additional system training along with advanced applications such as MRA refinements, cardiac imaging and site specific special applications. Additional no-charge visits throughout the warranty period will be scheduled at the customer's request.

## Applications Helpline

Hitachi provides an MRI applications helpline service for warranty and Ultra Plus Customer Support customers. This U.S. based dedicated line for applications assistance is available from 8:00 a.m. to 9:00 p.m. EST, Monday through Friday, and is staffed by Hitachi-experienced MRI technologists, ready to help you with your clinical challenge. The Hitachi Applications team can further assist you by taking advantage of the Sentinel remote support feature to review images in real time -with you. Our experts can see what you are seeing - expediting resolution of clinical challenges.

## HITS (Hitachi Institute for MR Technologists)

This program is designed to prepare technologists for initial on-site training, educate new users to MRI principles or to assist experienced personnel with Hitachi MR System's capabilities. Hitachi offers this educational program at scheduled intervals at our headquarters throughout the year to warranty and Ultra Plus Customer Support customers, at no additional charge. Customers are only responsible for T&L expenses.

Detailed information can be found on our website:

[www.hitachimed.com/OurServiceProgram/HitachiInstituteforTechnologists/index.html](http://www.hitachimed.com/OurServiceProgram/HitachiInstituteforTechnologists/index.html)

## MRI Accreditation Support

While we cannot guarantee success with ACR or ICAMRL (American College of Radiology or Intersocietal Commission for the Accreditation of Magnetic Resonance Laboratories) accreditation, Hitachi provides accreditation support benefits at no additional charge to warranty and UltraPlus Customer Support agreement customers. These key benefits ensure the best possible performance of Hitachi MRI equipment, and help you put together the best possible submission. We provide a highly informative Hitachi specific Accreditation Guidebook, we will assist you in phantom data collection, and we are available to advise you on all aspects of the accreditation programs via the Applications Helpline.

## MARKETING SUPPORT



## Customer Marketing

Hitachi knows to have a commercially successful MR business, you have to do much more than simply open your doors. That's why we provide an array of marketing tools to promote your facility to both referring physicians and patients alike. This marketing program has been highly effective for Hitachi customers nationwide.

Some of the materials and tools we provide at no charge:

- Marketing Guide with explanatory materials to further your understanding of marketing plans, medical imaging marketing, physician relationship building, and MRI.
- Sample Copy for Press releases, Physician letters, Fact Sheets that speak to features of the Hitachi products to help you promote your Hitachi equipped service
- Advertising templates
- Sample customizable printed brochures for patients and referring physicians ready for your facility information
- Digital MR images, PowerPoint presentation, Equipment photography, Patient information video, web banner samples

You will also have access to our web portal site for marketing support at [www.hitachimed.com](http://www.hitachimed.com).

Hitachi will also provide marketing consultation or training on request, delivered by our staff of imaging experts.

## Echelon and Oasis Advanced Marketing Program (AMP)

In addition to basic marketing support, Hitachi also offers the Advanced Marketing Program (AMP) to Echelon and Oasis customers covered by warranty or Ultra Plus agreements at no additional charge. Some of the Hitachi AMP benefits are:

- Print Ad Creation
- Billboard Design
- Mailer Design
- Product Introduction Materials
- Open House Materials
- Copy writing assistance
- Referring Physician Sheets
- Product Banners for Web site
- Flash Ads
- Poster Design
- Patient Downloads for Web site

## EQUIPMENT SUPPORT

### Sentinel Remote Customer Support

Sentinel enhances both clinical and equipment support for the Oasis or Echelon. Sentinel continuously monitors key systems and maintains a secure, high speed link to Hitachi providing for:

- Automatic detection of operational problems
- Automatic notification of Hitachi Service Dept.
- Remote diagnostics run from Hitachi's National Technical Support Center
- Help with challenging clinical cases from Hitachi's National Customer Support Center

## NON-DISCLOSURE STATEMENT

THE CONTENTS OF THIS QUOTATION SHALL NOT BE DISCLOSED TO ANYONE EXCEPT TO EMPLOYEES OF CUSTOMER WITH A LEGITIMATE NEED TO KNOW SUCH INFORMATION WITHOUT FIRST OBTAINING THE EXPRESS WRITTEN CONSENT OF HMSA.

## Service and Warranty

1. Prices include installation and 12 month warranty including Preventative Maintenance and all parts and labor.
2. The HMSA warranty will begin upon the completion of installation.
3. During the warranty period, HMSA service coverage hours will be 8:00 a.m. to 9:00 p.m., Monday through Friday. Preventative Maintenance can be scheduled during these hours allowing completion by 9:00 p.m.
4. Should equipment not provide 99% uptime during the warranty period coverage hours as defined above over a three (3) month period, then HMSA will extend the term warranty period by one (1) month for each quarter below the 99% guarantee level.

**HITACHI MEDICAL SYSTEMS AMERICA, INC.**  
 1959 Summit Commerce Park, Twinsburg, Ohio 44087-2371  
 Tel: 330.425.1313 Fax: 330.405.8079

Quotation Number: CRB1247  
 Revision Number: 7  
 Quotation Date: 04/11/2012



Presbyterian Orthopaedic Hospital

**System:**

Qty	Description	Unit Price	Customer Price
1	OASIS 1.2T HIGH PERFORMANCE OPEN MRI	2,350,000	1,313,371

**Included:**

Qty	Description	Unit Price	Customer Price
1	OASIS PHASE CONTRAST MRA	10,625	INCLUDED
1	HASKRIS CHILLER	50,000	INCLUDED
1	OASIS AUTO TABLE STEP	22,000	INCLUDED
1	OASIS ADVANCED NEUROSUITE SOFTWARE	18,000	INCLUDED
1	WORKFLOW PLUS	24,000	INCLUDED
1	OASIS RAPID Multi Array Wrist Coil	27,500	INCLUDED
1	MRI MUSIC SYSTEM	12,500	INCLUDED
1	SHIPPING AND INSURANCE TO CUSTOMER SITE	20,000	INCLUDED
1	OASIS RIGGING EXPENSES	15,000	INCLUDED
1	12 MONTH ADDITIONAL WARRANTY FOR A TOTAL OF 24 MONTHS	140,000	INCLUDED
1	BIO-MED TRAVEL & LODGING FOR TWO (2) PEOPLE	2,500	INCLUDED
1	BIO-MED TUITION FOR TWO (2) PEOPLE	5,000	INCLUDED

*System Package:* \$1,313,371

*Invoice Total:* \$1,313,371

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# Attachment B

March 28, 2012

Marty Haynes  
Strategic Sourcing Manager  
Novant Health  
119 Brookstone Avenue, Suite 400  
Winston-Salem, NC 27101

RE: Hitachi Oasis High-Field Bore-Less MR Scanner – Quotation Number: CRB1247

Dear Mr. Haynes.

Thank you for allowing Hitachi Medical Systems America (HMSA) the opportunity to earn your business. Novant Health is one of our most valued customers and we truly appreciate the partnership we share.

The purpose of this letter is to inform you that Hitachi Medical Systems will be responsible for removing your current GE 1.5T MRI Scanner, as part of your upcoming Oasis High-Field Bore-Less MRI purchase and estimate the de-installation and removal will be at a cost of \$4,000. However, Novant Health will be responsible for the cost of any scan room construction/renovation, clearing the rig path, and opening the scan room access panel. Further, Novant Health represents and warrants to Buyer that title to the GE 1.5T MRI shall be free and clear of all liens, claims and encumbrances of any kind whatsoever and Novant Health agrees to indemnify and defend HMSA, its successors and assignees from any costs or damages incurred as a result of any breach of the warranty herein contained. We will work closely with your facilities planning department to insure proper timing of the de-installation. The system will be deinstalled, removed and shipped by our subcontractor, Bay Shore Medical to their facility located in Ronkonkoma, New York. 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 do not hesitate to call me.

Sincerely,



Richard Pacenta  
Manager, National Accounts  
Hitachi Medical Systems America, Inc.  
[pacentar@hitachimed.com](mailto:pacentar@hitachimed.com)

330-425-1313x2971

© Hitachi Medical Systems America, Inc.

1959 Summit Commerce Park, Twinsburg, OH 44087 Tel: 800.800.3106 Fax: 330.425.1410

# Attachment C

## PROPOSED CAPITAL COSTS

Project Name: **Replace MRI Scanner**

16-May-12

Proponent: **Presbyterian Orthopaedic Hospital (Novant Health, Inc.)**

### A. Site Costs

(1)	Full purchase price of land		\$	N/A
	Acres _____ Price per Acre		\$	N/A
(2)	Closing Costs		\$	N/A
(3)	Site Inspection and Survey		\$	N/A
(4)	Legal fees and subsoil investigation		\$	N/A
(5)	Site Preparation Costs	\$	_____	
	Soil Borings	\$	_____	
	Clearing Earthwork	\$	_____	
	Fine Grade For Slab	\$	_____	
	Roads Paving	\$	_____	
	Concrete Sidewalks	\$	_____	
	Water and Sewer	\$	_____	
	Footing Excavation	\$	_____	
	Footing Backfill	\$	_____	
	Termite Treatment	\$	_____	
	Sub-Total Site Preparation Costs		\$	N/A
(6)	Other (specify)		\$	N/A
(7)	<b>Sub-Total Site Costs</b>		\$	<b>0.00</b>

### B. Construction Contract

(8)	Cost of Materials	\$	141,000.00	
	General Requirements	\$	_____	
	Concrete/Masonry	\$	_____	
	Woods/Doors & Windows/Finishes	\$	_____	
	Thermal & Moisture Protection	\$	_____	
	Equipment/Specialty Items	\$	_____	
	Mechanical/Electrical	\$	_____	
	Other	\$	_____	
	Sub-Total Cost of Materials		\$141,000.00	\$ 141,000.00
(9)	Cost of Labor GC Labor			\$ 211,500.00
(10)	Other - refurbish			\$ 20,000.00
(11)	<b>Sub-Total Construction Contract</b>			<b>\$ 372,500.00</b>

### C. Miscellaneous Project Costs

(12)	Building Purchase		\$	N/A
(13)	Fixed Equipment Purchase/Lease		\$	1,313,371.00
	Other: <i>Old Equipment Removal</i>		\$	4,000.00
(14)	Movable Equipment Purchase/Lease		\$	N/A
(15)	Furniture		\$	N/A
(16)	Landscaping		\$	N/A
(17)	Consult Fees			
	Architect and Engineering Fees	\$	22,500.00	
	Legal Fees	\$	N/A	
	Market Analysis	\$	N/A	
	Other (contingency )	\$	96,298.00	
	Sub-Total Consultant Fees			\$ 118,798.00
(18)	Financing Costs (e.g. Bond Loan, etc)			\$ N/A
(19)	Interest During Construction			\$ N/A
(20)	Other: <i>IT</i>			\$ 2,000.00
(21)	<b>Sub-Total Miscellaneous</b>			<b>\$ 1,438,169.00</b>
(22)	<b>Total Capital Cost of Project (Sum A-C above)</b>			<b>\$ 1,810,669.00</b>

# Attachment D



**Ec,a**  
*Architecture, PC*

April 27, 2012

Mr. Craig Smith, Chief  
Certificate of Need Section  
Division of Health Service Regulation  
701 Barbour Drive  
Raleigh, NC 27603

Re: Presbyterian Orthopedic Hospital - MRI Scanner  
1901 Randolph Road, Charlotte, NC 28207

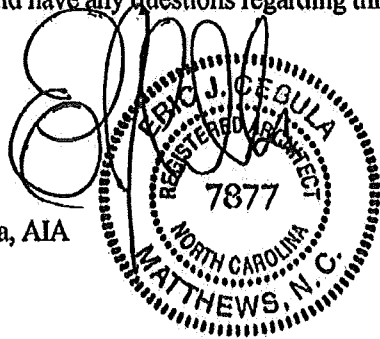
Dear Mr. Smith:

Ec,a Architecture has reviewed the proposal submitted by Revels Contracting Services, Inc. for the remedial construction of a 950 square foot MR suite in the existing Presbyterian Orthopedic Hospital building in Charlotte, North Carolina.

It is our opinion, that the scope of the work is adequate to complete the project as discussed and outlined by this proposal. Furthermore, the construction estimate of \$375,000 is reasonable, for the proposed scope of work for the project, when compared to other similar projects in North Carolina. The construction is estimated at \$352,500 and \$22,500 for A&E drawings for a total cost of \$375,000.

If you should have any questions regarding this project, please do not hesitate to contact me. Thank you.

Sincerely,



Eric Cebula, AIA

**Ec,a Architecture, PC**

Eric J. Cebula, AIA PO Box 30183 Charlotte, NC 28230  
704.849.6748 (tel) 800.652.0689 (fax) 704.906.6752 (cell) eca-cebula@carolina.rr.com

# Attachment E

Presbyterian Orthopaedic Hospital (POH) - MRI Scanner	EXISTING EQUIPMENT	REPLACEMENT EQUIPMENT
Type of Equipment	MRI Scanner	MRI Scanner
Manufacturer of Equipment	GE	Hitachi
Tesla Rating for MRIs	1.5 T	1.2 T
Model Number/Name	LX-Hi Speed	Oasis High-Field Bore-Less
Serial Number	704370POMR	TBD
Provider's Method of Identifying Equipment (POH uses an internal numbering system)	Internal Asset Numbering System	Internal Asset Numbering System
Specify if Mobile or Fixed	Fixed	Fixed
Mobile Trailer Serial Number/VIN #	n/a	n/a
Mobile Tractor Serial Number/VIN #	n/a	n/a
Date of Acquisition of Each Component	2000	TBD
Does Provider Hold Title to Equipment or Have a Capital Lease?	Title	Title to be held by POH upon Purchase
Specify if Equipment Was/Is New or Used When Acquired	New	New
Total Capital Cost of Project (Including Construction, etc.) <Use Attached Form for New Equip>	\$ 2,610,476	\$ 1,810,669
Total Cost of Equipment	\$ 2,000,000	\$ 1,313,371
Fair Market Value of Equipment	n/a	\$ 1,313,371
Net Purchase Price of Equipment	n/a	\$ 1,313,371
Locations Where Operated	POH	POH
Number Days In Use/To be Used in N.C. Per Year	365	365
Percent of Change in Patient Charges (by Procedure)	None	None
Percent of Change in Per Procedure Operating Expenses (by Procedure)	None	None
Type of Procedures Currently Performed on Existing Equipment	MR Imaging	-----
Type of Procedures New Equipment is Capable of Performing	-----	MR Imaging