502-B35003 - 502-B35005

XR-MRI, VAMC PINEVILLE, LA

Line #	Part #	Description	Qty	Each	Price
1		Ingenia Omega 1.5T	1		

Ingenia 1.5T Omega

Ingenia with dStream architecture provides flexible and intelligent tools for faster exams and more consistent scanning, as well as excellent clinical performance for a variety of applications – all while increasing patient comfort. Designed for today and tomorrow, it is a safe investment that will serve your needs well into the future.

At the heart of the Ingenia is the new dStream architecture. dStream comprises:

- DirectDigital RF receive technology, which samples the MR signal directly in the RF coil on the patient.
- FlexStream workflow, which increases system versatility and throughput
- EasyExpand, which enables plug and play expansion of clinical capabilities without major upgrades

Philips Ingenia significantly improves MR image clarity, speed and expandability.

- Clarity: By digitizing the signal directly on the patient, dStream captures image data where the signal is at its purest.
- Speed: Patient and coil handling have never been easier: flexible exam setup to meet each patient's unique situation, simplified coil changeover and optimal quality for any exam.
- Expandability: The number of channels is determined by the coil, rather than limited by the system. This makes the MRI system forward-compatible to easily access emerging applications like body and cardiac and new enhancements for established applications like neuro and musculoskeletal imaging.

dStream architecture

Unique digital broadband MR architecture capturing the purest MR signal combined with enhanced workflow and ease of use to provide increased SNR and greater efficiency in your daily operations. In addition the number of channels is no longer determined by the MR system.
- Up to 40% greater signal-to-noise ratio (DirectDigital)
- As much as 30% improvement in throughput (FlexStream)
- Easy expandability of clinical capabilities without the need for major system upgrades (EasyExpand)

Xtend design

System design optimized not only to provide a 70cm wide bore, but also to provide optimum quality and performance for imaging even the largest patients. Industry-leading magnet, gradient and system body coil designs provide the largest field-of-view for a 70cm system. Xtend offers the best combination of magnet homogeneity and gradient performance over a 55 cm FOV.

- Image eyes-to-thighs in as few as 2 stations

- Excellent large FOV and off-center imaging, ideal even for large patients
- Increased image accuracy for large FOV and multi-station exams

Magnet system

- Xtend ultra-large up to 55 cm field-of-view combined with a 70cm bore system, enabling uncompromised coverage and imaging of large patients.
- Actively-shielded, lightweight design (<3300 kg) and compact fringe field (2.4 x 3.8 m) footprint for easy siting.
- Ultra compact patient-friendly magnet design - only 1.5m in length
- Best-in-class magnet homogeneity (1.8 ppm / 50 x 50 x 45 cm V-RMS) for excellent image quality, off-center imaging and fat suppression.
- Superconducting screening coils to reduce magnetic field susceptibility caused by moving external ferrous objects.
- HeliumSave zero boil-off technology for zero helium consumption (0 l/hr) under regular scanning conditions.
- Side turret design for easy installations even with low ceiling and difficult access

Gradient system

Omega Gradients
High-performance gradients specifically designed for a wide bore magnet. Omega provides a high linearity and maximum peak and slew rate over the entire imaging field of view.

- Gradients with peak amplitude up to 33 mT/m (57 mT/m effective), peak slew rate up to 120 mT/m/ms (208 mT/m/ms effective). All specifications are on axis (x, y and z).
- Superb linearity (< 1.4% over 50 cm FOV) to improve geometric and diffusion accuracy, and to maximize resolution, even at the edges of the field-of-view.
- State-of-the-art water-cooled gradient coil and solid-state amplifier for high fidelity and 100% duty cycle.
- Non-resonant gradient design allows flexible generation of any type of gradient waveform.
- The integrated force-balanced design of the gradient coil and magnet reduces vibrations and ensures acoustic noise is minimized.
- Extremely low eddy currents for short echo times
- AutoSofTone further reduces gradient acoustic noise by up to 30 dB (an 86 % reduction in patient-perceived acoustic noise).

RF receive: DirectDigital and EasyExpand

DirectDigital: Unique Philips technology that samples the MR signal directly in the RF coil on the patient. The fiber-optic transmission of digital broadband data from the coil to the image reconstructor removes potential noise influences typical with analog pathways.
- Capturing the purest MR signal with up to 40% greater signal-to-noise, enabling higher speed/resolution
- Increased dynamic range (max 187 dB)

DirectDigital technology additionally includes:

- Sub-millisecond TRs and ultra-short TEs
- Real-time imaging control for clinical motion correction:

- Navigator-corrections required for free-breathing cardiac techniques
- High-resolution diffusion (i.e., PhaseTrak) with profile updates within 1 ms.
- Real-time control of RF transmission, gradient switching, data acquisition and triggering.

EasyExpand: Inherent design of the dStream architecture, where channels are determined by the coils rather than the system. The MR system becomes channel independent, which means a removal of the number of channels as a system specification. This enables plug-and-play expansion of clinical capabilities.
- Expansion does not require major system upgrades, resulting in lower life cycle costs.

dS-SENSE
Next generation parallel imaging for the dStream (dS) architecture, which simplifies and speeds up scan setup and enables higher parallel imaging factors for more speed or resolution.
- Includes quick, fully integrated reference scans which are planned automatically.

RF transmit

- 18 kW High-performance solid-state RF power amplifier that affords the energy necessary to image even the largest patient.
- RF-SMART technology enables SAR to be effectively managed through balanced system design, and maximizes scanner performance in combination with the application of Philips-unique imaging capabilities such as SENSE, SPAIR, Flip Angle Sweep and RF amplitude control.

Standard RF receive coils
dS T/R System Body coil 1.5T
The integrated dS T/R System Body coil is a transmit/receive system coil which is typically used for RF excitation, but can also be used for imaging various (large) body parts.
- Solid-state quadrature Transmit/Receive technology for improved SAR control and a high signal-to-noise ratio
- DirectDigital sampling in the coil where the MR signal is at its purest
- Excellent homogeneity
- 70 cm aperture

dS TotalSpine 1.5T

An integrated coil solution for total spine related imaging. It includes the FlexCoverage Posterior and the Base coil with 90 cm coverage, using 44 channels maximum.
Posterior coil, used routinely in 60% of all applications, is an integrated coil below the thin table top providing neck-to-toe coverage. This coil does not need to be carried, positioned, connected nor exchanged, thereby enhancing workflow. It is always there when you need it.
- Coverage: 90 cm
- Maximum number of channels: 44
- Main applications: Total spine, C-Spine, T-Spine, L-Spine
- Coil type: Integrated
- DirectDigital sampling in the coil where the MR signal is at its purest, without loss in the RF chain, enabling:
  - Enhanced SNR

- dS-SENSE enhanced parallel imaging performance
- Single FlexConnect coil connection and cable for fast and easy setup
- The Base coil can stay on the table for most examinations without exchanging coils

dS HeadSpine 1.5T

An integrated coil solution for head and total neuro related imaging. It includes the Head coil. Combined with the FlexCoverage Posterior coil and Base it enables:

- 30 cm coverage, using 15 channels maximum (Head)
- 90 cm coverage, using 51 channels maximum (Total Neuro)

The head section can be tilted to provide optimal positioning and comfort for challenging patients such as Kyphosis patients.

- Coverage: 30 cm (Head) and 90 cm (Total Neuro)
- Maximum number of channels: 15 (Head) and 51 (Total Neuro)
- Main application: Head, Brain, Total Neuro, Total spine, C-Spine, T-Spine, L-Spine
- Coil type: Integrated
- Lightweight coil(s)
- DirectDigital sampling in the coil where the MR signal is at its purest, without loss in the RF chain, enabling:
  - Enhanced SNR
  - dS-SENSE enhanced parallel imaging performance
  - dS-SENSE capable in AP, LR and FH directions
- Cable-less connection of top coil

dS HeadNeckSpine 1.5T

An integrated coil solution for head, neck and total neuro related imaging. It includes the HeadNeck coil. Combined with the FlexCoverage Posterior coil and Base it enables:

- 45 cm coverage, using 20 channels maximum (Head-Neck)
- 90 cm coverage, using 52 channels maximum (Total Neuro)

- Coverage: 45 cm (HeadNeck) and 90 cm (Total Neuro)
- Maximum number of channels: 20 (HeadNeck) and 52 (Total Neuro)
- Main applications: NeuroVascular, Head, Brain, Pediatric, Total Neuro, Total spine, C-Spine, T-Spine, L-Spine
- Coil type: Integrated
- Lightweight coil(s)
- DirectDigital sampling in the coil for the purest MR signal without loss in the RF chain, enabling:
  - Enhanced SNR
  - dS-SENSE enhanced parallel imaging performance

- dS-SENSE capable in AP, LR and FH directions
- Cable-less connection of top coil

dS Flex M 1.5T

An integrated coil solution for general-purpose imaging. It includes two medium-sized flexible general-purpose coils. Combined with the FlexCoverage Posterior coil they enable 15 cm coverage, with a maximum of 6 channels.

The shape and size of the flexible coil elements enable a wide variety of applications, including imaging of medium sized anatomies. The coil can be used to locally enhance resolution of images acquired over a larger FOV, for example in pediatric applications.

- Coverage: 15 cm
- Maximum nr. of channels: 6
- Main applications: Shoulder, Foot, Ankle, Knee, Pediatric
- Coil type: Integrated
- dS-SENSE enhanced parallel imaging performance

dS SmallExtremity 8 Channel 1.5T

Semi-flexible coil designed for imaging of elbows, hands and small knees. The coil has an inner diameter of 20 cm to match the size of the small extremities. It has a flexible wrap-around design for easy positioning and good fit. A mattress that supports both patient and coil is provided to increase patient comfort and avoid motion.

- Coverage: 20 cm
- Maximum nr. of channels: 8
- Main applications: Elbow, Arm, Extremities
- Coil type: Dedicated

dS-SENSE enhanced parallel imaging performance

dS coil solutions
dStream (dS) coil solutions provide a full range of clinical solutions with two types of coils:

- Integrated coils combine to provide solutions for multiple applications
- Dedicated coils optimize imaging for a single application

dS coil solutions have been optimized for 3 important characteristics:

- Intrinsic signal-to-noise ratio (DirectDigital)
- Imaging coverage
- Parallel imaging performance

dStream Interface
Allows the connection and digitization of the signal from traditional RF coils* at the table. The digital signal from the interface is transferred via an optical connection to the reconstructor.

- Connector interface designed for easy connection and automatic release of coil

- Connects traditional coils up to 16 channels

*Note: Achieva coils are not compatible with dStream interface

Workflow / throughput: FlexStream

FlexStream is hinged upon the unique FlexCoverage Posterior coil that provides neck-to-toe coverage without the need for any manual coil removal or patient repositioning. The FlexCoverage Posterior coil simply combines with other unique dS coils to enable imaging with fewer coils and reduce concerns for coil positioning and patient setup. The optional FlexTrak patient transport system enables easy patient preparation and more efficient use of the MR scanner. FlexTrak solutions can instantly convert your MR system from general purpose use to dedicated advanced clinical use, such as breast imaging, intervention or therapy applications, while ensuring high throughput.
- As much as 30% improvement in throughput
- Easy coil handling through lightweight patient conforming coil design
- Large coverage coils for easier positioning
- Flexible combinations of coils
- Efficient coil usage – more applications with fewer coils
- Unique design allows up to 70% of routine applications without additional coil connections.
- FlexConnect easy to use, single-handed coil connections.

FlexCoverage Posterior coil

Posterior coil, used routinely in 60% of all applications, is an integrated coil below the thin table top providing neck–to- toe coverage. This coil does not need to be carried, positioned, connected nor exchanged, thereby enhancing workflow. It is always there when you need it.
- Head-to-toe coverage up to 200 cm in combination with the base coil
- FlexConnect coil connection / connectors:

Single-handed coil connection for fast and easy plugging and unplugging of coils, and for auto-eject with FlexTrak undocking in emergency cases.

The small FlexConnect connectors use advanced fiber-optic connections for carrying digital broadband MR signals.

- Enhanced reliability by eliminating delicate RF pin connections.

FlexTrak table top

Ultra-thin table top that maximizes bore space. Includes coil connections directly on the table top for fast and easy setup.
- Ultra-thin design ensures minimal distance between patient and FlexCoverage Posterior coil for optimal SNR
- Ultra-strong design supports patients up to 250 kg (550 lbs)
- Wide table for enhanced patient space and comfort
- Easily removed for patient transport using the optional FlexTrak patient transport system

Workflow / throughput: SmartAssist

Next generation, easy-to-use SmartExam and ExamCards software that helps the user reduce the number of manual tasks.

- Simplifies workflow by making ExamCards more efficient
- Can reduce repetitive tasks by half
- Increases efficiency, reproducibility and consistency

ExamCards

A grouping of individual sequences an d operations that define a clinical protocol. An ExamCard can include both the imaging sequences and any of the SmartAssist functionalities. ExamCards makes even the most complex exams simple.

- A set of Philips defined ExamCards is standard
- User-defined ExamCards can be created and stored
- Can be exported to memory stick or portable device
- Can be locked with a password to prevent unintended changes
- Can be shared among any of your scanners
- Philips NetForum provides an online community that allows ExamCards to be shared and downloaded
- Supports user-editable tips and processing/viewing/networking steps
- Supports single mouse-click scanner operation

SmartStart

One button action that automatically moves the table to isocenter and starts the ExamCard while the operator walks back to the console reducing the setup time.
SmartSelect coil and element selection

Automatically detects and selects the right coil and coil elements to maximize the SNR matching the area to be scanned.

- Simplifies patient positioning and coil placement
- No need for manual coil or element selection
- Optimal SNR
- Facilitates higher throughput

SmartExam planning (optional)

Assists the operator in planning the MR exam. SmartExam uses sophisticated algorithms to recognize the anatomy. Then, using previously run exams as input, SmartExam automatically positions slices on the target anatomy, and uses ExamCards to conduct the study, reducing operator input to as little as a single mouse click.

- Targeted for 100% reproducibility and consistency in outcome

SmartExam optional packages include:

- SmartExam Brain
- SmartExam Spine
- SmartExam Shoulder

- SmartExam Knee
- SmartExam Breast

SmartLink geometry linking

SmartLink (geolink) is a tool for simplifying the planning, viewing and processing of multi-sequence multi-station exams, treating multi-station exams as one volume.
- Allows a single table sweep for multi-sequence (e.g. T1, T2, STIR) multi-station exams. All sequences are run at each station before the table is moved to the next station minimizing the number of table movements for increased patient comfort.
- Provides the flexibility to perform one sequence at all stations before starting the next sequence.
- Labels and sorts images regardless of the order in which they are acquired for subsequent viewing and processing as a single volume.
- BolusTrak (fluoroscopic scans) can be interleaved at any point during a multi-station exam.

SmartLine processing

Smart, automated and intelligent processing of image data. SmartLine processing steps can be run simultaneously and in parallel with image acquisition. Defined in the ExamCard, the same processing settings are used every time for consistent results.
- Progress of each processing step is clearly displayed to the user alongside the scanning progress.

The following packages are included:

- **SmartLine** VolumeView Real-time MIP, MPR and 3D surface rendering (standard or user defined volumes of interest enable elimination of unwanted signals regions)
- **SmartLine** ImageAlgebra (including addition, subtraction, relative subtraction, cumulation, ratios, MTC, ASL calculation)
- **SmartLine** PicturePlus for user-defined image filtering (smoothing and/or edge enhancement)
- **SmartLine** T1 / T2 / rho map calculation
- **SmartLine** Delayed Reconstruction enables various retrospective image reconstructions from raw data (e.g. reconstruction of various flow directions from a 3D phase-contrast MRA dataset)

ScanTools dependent options:

- **SmartLine** Diffusion registration
- **SmartLine** Diffusion (ADC, eADC, etc.)
- **SmartLine** IViewBold real-time fMRI analysis

WholeBody Specialist

The Whole Body Specialist package enables rapid, automated whole body imaging with an effective field of view of over 2.1 m (7 ft). With ExamCards, Whole Body Specialist delivers complete multi-station head-to-toe coverage in a single table motion, through the ability to combine all imaging sequences per station (requires ScanTools Pro). Whole Body Specialist supports whole body oncology imaging studies; whole body MR angiography studies and extends

DWIBS to the whole body. Ingenia's large FOV allows the full coverage in a reduced number of stations.

Key features:

- Supports up to 20 stations.
- Scanalign feature to guarantee user defined overlap between stations.
- ExamCards automates the entire acquisition. Multiple sequences can be acquired at each station, reducing table movement and shortening total exam time
- MobiView automatically generates one seamless image from multi-station data. Data from each sequence are automatically combined and presented, regardless of the order in which data are acquired

All data created can be transferred via DICOM to PACS or other workstations and all results can be converted to Windows-compatible formats.

Viewing, filming and export
The MR viewing environment supports fast and flexible viewing, processing and film generation

- Window width/level, zoom, pan, rotate, mirror
- Image annotation (text, arrows and lines)
- Simultaneous visualization of up to four independent series for comparison.
- Cine movie display in various formats
- Drag & drop functionality to enable the creation of films containing random image selections
- Single mouse click film generation of image series using a range of predefined formats
- Images and movies can be exported to Windows PC formats as visible on screen

SCANTOOLS PRO

ScanTools Pro provides dedicated packages of optimized examinations for virtually all clinical applications and body regions including:

- Neuro Pro
- Ortho Pro
- Angio Pro
- Body Pro
- Breast Pro
- Onco Pro
- Cardiac Pro
- Pediatric Pro

Each Pro package consists of application-specific ExamCards, imaging sequences, and acquisition and reconstruction methods that exploit the power of the system, along with the necessary specialized image processing and viewing tools for the MR WorkSpace. ScanTools Pro delivers many advanced capabilities that go beyond everyday clinical routine to provide an extra level of performance for specialized studies.
Key features of ScanTools Pro:

SAMESCAN:

SameScan enables fast, easy and precise follow-up in brain studies. Through identification of key anatomical landmarks, SameScan allows the exact scanning parameters, slice positioning and geometry of a patient's previous study to be acquired in subsequent examinations.

EXAMCARD PROCESSING:

ExamCard Processing streamlines clinical workflow by fully automating data processing for a number of routine clinical applications. Processing takes place in the background immediately following completion of the acquisition. Includes:

- Diffusion Maps (ADC, eADC and Trace) and Diffusion Registration
- T2* Perfusion Color Maps (MMT, T0, TTP, NI, Index)
- T1 Perfusion Color Maps (T0, TTP, Wash-In, Wash-Out, Area-under-the-curve)
- Image Algebra (Addition, Subtraction, Division, Multiply, Magnetization Transfer Coefficient Ratio)
- PicturePlus
- ExamCards definitions can to be saved to the database along with the acquired images.

MOBIVIEW:

Enables automatic, single mouse-click composition of data sets from multi-station acquisitions into full FOV images. Applications include Runoff MRA, Complete CNS and Complete Torso. Individual data sets may have different FOV, resolution and geometries. Composite images may be displayed, stored, filmed and exported via DICOM and PC-compatible formats. These images are compatible with viewing, measurement and processing tools, including MIP, MPR and 3D surface rendering. MIPs may be performed around an axis defined in any of the individual data sets.

MOBIFLEX:

Facilitates and simplifies the setup and acquisition of complex multi-station exams. MobiFlex allows complete multi-station exams to be planned with a single mouse-click. The individual acquisitions may be acquired with different FOVs, resolution, geometries and SENSE acceleration factors. MobiFlex also can be combined with BolusTrak and CENTRA. With MobiFlex, multi-station exams, consisting of different sequence types at each station, the acquisition order can be optimized to minimize total scan time, time between stations and table movement.

SENSE:

Provides true acceleration in image acquisition with SENSE-compatible coils up to a 16-fold (3D acquisition) acceleration in acquisition speed, independent of resolution and matrix size. SENSE is compatible with the vast majority of imaging techniques including diffusion, in which SENSE reduces the echo train length to increase SNR and reduce susceptibility effects, and dynamic techniques such as TRACS, e-THRIVE and BLISS.

e-THRIVE:

e-THRIVE is a newly designed method for enhanced dynamic contrast application that results in sharper delineation of vessels and liver parenchyma as well as better tissue contrast.

- T1 W dynamic volumetric excitation
- Linear k-space trajectory with half scan in slice and phase direction

e-THRIVE can be combined with SENSE to enable isotropic high-resolution T1-weighted images with extensive volumetric coverage and uniform fat suppression, in short breath-hold times and in any imaging plane. e-THRIVE is ideal for dynamic liver, small bowel, breast, prostate and pancreas imaging. Isotropic images are excellent for MIP and MPR.

BLISS:

BLISS is a multi-volume imaging technique that enables the collection of two bilaterally-placed volumes within a single acquisition. Localized shimming is performed for each volume for optimal

fat suppression. BLISS is ideal for high-resolution sagittal breast studies, and uses SENSE for rapid scan times.

VISTA:
VISTA provides high-resolution 3D T2 weighted images acquired with a TSE acquisition. Acquisition time and inter-echo spacing are optimized through the applications of flip angle sweep in combination with non-selective refocusing pulses. Images are ideally suited to imaging of the spine, creating multiple orientations through MPR processing.

SNAPSHOT:
Snapshot imaging eliminates the effects of patient and physiological motion through the combination rapid TSE sequences with the acceleration of SENSE. Individual Snapshot images can be acquired in any orientation in approximately 250ms to 300ms. Asymmetric TSE makes Snapshot compatible with T1-, T2- and diffusion-weighted imaging.

MultiVane:
MultiVane delivers high resolution diagnostic images even in the case of severe patient motion. MultiVane provides motion correction to multi-shot TSE (T1, T2, IR-real, FLAIR) and gradient-echo examinations through the use of radial encoding and selective usage of acquired data lines based on motion criteria. MultiVane can be used in brain examinations of the brain, in addition to other anatomical areas.

DIFFUSION:
Single-shot EPI diffusion-weighted (DWI) sequences permit motion-free visualization of isotropic DWI images - with three diffusion directions and up to 16 b-values per scan - and automated creation of Apparent Diffusion Coefficient (ADC) maps.

HIGH-RESOLUTION DIFFUSION:
High-resolution Diffusion eliminates the effects of patient and physiological motion through the use of large matrix size multishot sequences with navigator-based motion correction. High-resolution Diffusion is compatible with all multishot sequences, including EPI, GraSE and TSE Diffusion. Applications include brain, brain stem and spine.

SPAIR:
A high uniformity fat saturation method making use of adiabatic spectral saturation pulses, ensures insensitivity to RF field inhomogeneities and lowers SAR. SPAIR is ideal for applications such as liver, shoulders, pelvis and hips.

BOLUSTRAK:
Enables accurate synchronization of high-resolution CE-MRA acquisitions. BolusTrak uses a real-time fluoroscopic display of bolus arrival in the area of interest and manual start of the target acquisition. BolusTrak in combination with CENTRA minimizes venous contamination and produces optimal arterial vessel contrast and resolution.

TRACS:
TRACS (Timing Robust Aquisition using Centra and SENSE) enables accelerated time-resolved contrast-enhanced vascular imaging. TRACS uses SENSE for image acceleration and CENTRA phase-encode ordering for optimized contrast.

TRANCE:
TRANCE (Triggered Angio Non Contrast Enhanced) for 3D non contrast enhanced MRA techniques that use cardiac triggering. The cardiac triggering is applied to make use of the varying flow profiles during the cardiac cycle. An automatic subtraction of two triggered scans with different phase will result in vizualization of arteries only.

b-TRANCE:
Balanced TRANCE, or b-TRANCE is a 3D TFE technique with ECG triggering. Fat suppression is done with ProSet on 1.5T and HFO, SPIR (Spectral Presaturation with Inversion Recovery) on 3T. An extra inversion pulse is used to remove background signal, and after a period of about 400 ms acquisition is started. Fresh inflowing spins will give a high signal. Three pre-saturation slabs are used, to suppress venous flow and signal from the parenchyma. Main application is anatomic imaging of the renal arteries. This makes b-TRANCE particularly powerful as a non contrast method, because renal artery patients will statistically have a higher risk for NSF.

PROSET WATS and FATS:
Combines the characteristics of the high-resolution volume acquisitions with ProSet water or fat only selection. Applications include T1-weighted Body and Spine Nerve Root Visualization and Cartilage imaging and MR arthrography in orthopedics.

ASYMMETRIC TSE:
Extended contrast control for TSE acquisitions through optimized mapping of individual echoes into the image. Applications include proton density weighted imaging of joints with higher spatial resolution or faster scan times.

m-FFE:
m-FFE provides unique image contrast - ranging from 2D or 3D gradient-echo sequences to the combination of echoes. m-FFE is very useful for neuro and musculoskeletal applications.

REFOCUS CONTROL:
Uses sophisticated flip angle sweep control in TSE acquisitions to optimize contrast-to-noise and scan time, while at the same time controlling SAR levels.

DRIVE:
Enables shorter TRs while maintaining contrast-to-noise and SNR for T2-weighted 2D and 3D TSE acquisitions, resulting in shorter scan times and increased resolution.

3D TFE:
3D TFE enables isotropic coverage of the entire head in scan times under 2 minutes, using acceleration factors of up to 16 (4*4). A single data set can be reformatted into alternate planes both pre- and post-contrast, eliminating the need for additional scans.

DWIBS:
DWIBS enables diffusion-weighted contrast to provide unique visualization of regions throughout the body using a single or multi-station background-suppressed diffusion imaging. DWIBS applications are diverse, supporting lesion visualization throughout the torso, and to visualize nerve roots and brachial plexus.

MOTIONTRAK BODY:
MotionTrak Body is based on a new implementation of a non-cardiac triggered Real-Time Navigator. It is designed for all Body applications that require synchronization of data acquisition to the respiratory cycle of the patient.

BLACKBLOOD:
Features pre-pulses to achieve suppression of the blood signal for optimum myocardial and lumen visualization in cardiac and vascular imaging.

CLEAR:
CLEAR provides a unique signal uniformity correction based on coil-sensitivity and on patient loading. CLEAR improves image uniformity, reduces bright fat signal at the surface of coils, and extends the effective coverage of phased array coils.

PICTUREPLUS:
PicturePlus is an image enhancement tool that can improve the appearance of images through

edge enhancement and smoothing. The operator has control over enhancement parameters, which can be applied automatically post-acquisition or as a post-processing option.

T2* PERFUSION:
Dynamic multi-slice T2*-weighted sequences based on single- or multi-shot FFE or FFE EPI methods. Processing and calculation of hemodynamic maps are available, including Mean Transit Time (MTT), Time to Peak (TTP), Time of Arrival (T0), Negative Integral (NI) and Index.

PRESTO:
PRESTO is an ultra-fast 3D volume sequence that provides a unique combination of whole brain coverage and high temporal-resolution T2*-weighted imaging for perfusion-weighted and BOLD imaging studies. In combination with SENSE, PRESTO provides higher temporal resolution and coverage compared to traditional multi-slice techniques. This method also affords reduced sensitivity to susceptibility and flow artifacts associated with EPI techniques, enabling imaging throughout the brain and into the skull base. PRESTO further speeds up Venous BOLD.

EPI BOLD:
EPI BOLD provides dynamic multi-slice T2*-weighted sequences based on single- or multi-shot FFE and SE EPI methods.

VENOUS BOLD:
Provides T2*-weighted 3D sequences compatible with SENSE, allowing high-resolution acquisitions in short scan times. These sequences are useful for evaluating various brain anomalies associated with blood.

Motion Correction for Neuro:
Automatically accounts for subject motion by continually monitoring subject motion during the acquisition and modifying the geometry parameters in real time. PMC enables avoidance of registration from post-processing while improving overall registration accuracy. Prospective Motion Correction is an algorithm that corrects neuro imaging data against motion encountered during a time series acquisition (BOLD) and Diffusion image registration correct during acquisition potential motion for diffusion imaging. Motion correction for Neuro enables avoidance of registration from post-processing while improving overall registration accuracy.

ECG-triggered Inversion Recovery (IR):
Application of single RF inversion pulses with control of inversion times for adjustable contrast, and/or tissue nulling. Compatible with TSE, TFE, and TFE-EPI imaging methods.

VCG Gating:
VectorCardioGram Gating is a more robust method than regular ECG gating, providing virtually 100 % triggering accuracy. VCG greatly reduces operator setup time and thus overall exam time, even for patients with pathologic ECG patterns. This method provides automatic adjustment to the electrical axis of the patient's heart and to the specific multi-dimensional QRS waveform. Includes a four-lead cable set.

FLOW:
Phase contrast (PC) sensitive imaging enables depiction of moving fluid without any background signal that is sensitized in all three directions with variable VENC values. Retrospectively gated 2D multi-phase acquisitions permit evaluation of blood or CSF flow. Retrospectively gated TFE PC enables quantitative measurements in one breath hold. Quantitative flow allows non-invasive measurements of blood flow or CSF flow in three directions, including flow maps for Doppler-like viewing.

B-FFE/TFE:
Ultra-fast steady-state 2D and 3D imaging techniques are insensitive to fluid motion, thereby producing exceptional contrast between bright fluids and surrounding tissue. These techniques provide optimal myocardium-to-blood contrast for (functional) cardiac studies. High-resolution

isotropic data sets are ideal for MIP and MPR processing to visualize the inner ear, and to produce myelograms in addition to non-contrast enhanced angiograms.

3D Brain VIEW:
3D Brain VIEW is an optimized 3D TSE technique that combines long echo train length TSE acquisitions with excellent image sharpness and high SENSE acceleration in two dimensions. The result: 3D brain coverage allowing you to see the smallest structures in a very time efficient manner. One can reconstruct the data in any other plane as desired.

Clinical Packages:

Neuro Pro
The Neuro Pro package provides High-quality, high-resolution neuro imaging results, which allows for the assessment of morphology in the brain and spine.

Features include:

- ExamCards for head and spine imaging
- SENSE imaging for all Philips SENSE coils allowing faster scan times or improved susceptibility suppression.
- High-resolution acquisitions on the order of 1024 acquisition and reconstruction
- Large FoV Spine studies
- MobiFlex compatible with all sequences to allow for improved Total Spine imaging to be visualized in the MobiView package for seamless single mouse-click Total-spine evaluation.
- Sequences include SE, FFE and EPI based methods
- Fat suppression provided by STIR, SPIR, ProSet and SPAIR methods
- 3D based sequences for TSE including DRIVE for improved fluid visualization (IAC)
- Balanced FFE/TFE for high-resolution high contrast (IAC and Spine applications).
- Single, Dual and Triple IR sequences for evaluation of gray and white matter differentiation
- VISTA: Isotropic 3D TSE allows volumetric acquisitions that can be reconstructed in any plane (e.g. Brain and Lumbar spine)
- 3D T1-TFE sequences allow volumetric acquisition and reconstruction of the original dataset in any orientation (e.g., Brain gray/white matter differentiation). Can be applied with both full and partial integer SENSE factors in either primary or slice direction to reduce scan times.
- FLAIR for CSF suppression (TSE and EPI based)
- Multiple radial projection myelography as well as 2D and 3D sequences.
- ProSet water and fat excitation for nerve root imaging
- Snapshot imaging for uncooperative patients
- MultiVane to correct motion for multi-echo TSE examinations using radial encoding
- Multi-slice, multi-echo TSE with up to 32 echoes per slice also compatible with GRASE imaging
- Flip Angle Sweep TSE for reduction of SAR and decrease of MT effects improving gray/white matter contrast in both T2 and FLAIR acquisitions
- DWI based methods include both single-shot and multi-shot (with PhaseTrak) with automated processing of the ADC maps (for both brain and spine DWI)
- Advanced motion correction for BOLD and Diffusion imaging
- T2* based sequences for Perfusion and fMRI sequences including FFE-EPI, SE-EPI and Presto.
- T2* perfusion analysis for the processing and calculation of color hemodynamic maps, including Mean Transit Time (MTT), Time to Peak (TTP), Time of Arrival (T0), Negative Integral (NI) and Index.

Body Pro

Body Pro enables fast high-resolution scan methods for Torso imaging.

Features include:

- ExamCards for chest, abdomen and pelvis imaging
- Sequences for both 2D and 3D acquisitions
- Triggered, Multishot BH and free breathing ultra-short TSE sequences are available
- All sequences compatible with SENSE for reduced breath-hold time and CLEAR homogeneity correction for fast high-quality body imaging.
- In and out of phase breathhold FFE and TFE. TFE for fast T1- weighted imaging (using inversion and saturation pre-pulses) can also be combined with free breathing snapshot imaging.
- e-THRIVE compatible with either SPIR or SPAIR fat suppression, allow for choice between high-resolution and or improved isotropic acquisitions in a single breathhold (can be used for dynamic high-spatial and temporal resolution imaging for Liver and Colonography)
- Keyhole imaging for high temporal dynamic studies.
- Processing and calculation of T1 perfusion color maps (T0, TTP, Wash-In, Wash-Out, Area-under-the-curve)
- ProSet with 3D volume acquisition T1 weighted scans(useful for pancreas and liver breath-hold imaging)
- MRCP/U sequences acquired by SSH, radial SSH and 3D acquisitions allows for high-resolution imaging with or without triggering or Breath hold imaging
- Multi-Echo T2 measurements (up to 32 echoes) for T2mapping.
- Free-breathing non-contrast enhanced portal vein imaging with B-TFE
- High-resolution pelvic imaging with short exam times afforded by SENSE and excellent fat-suppression supplied by SPAIR adjustable fat-suppression technique.
- VISTA: Isotropic 3D TSE allows volumetric acquisitions that can be reconstructed in any plane (pelvis)

Breast Pro

Breast Pro enables both high-spatial and/or temporal resolution. Efficient breast imaging via the use of ExamCards Breast Pro offers sequences for both 2D and 3D acquisitions and include:

- ExamCards for breast imaging
- e-THRIVE and BLISS, which are compatible with either SPIR or SPAIR fat suppression,
- High-resolution T1 and T2 TSE sequences compatible with SENSE for fast high-resolution scanning and CLEAR homogeneity correction.
  Silicone only sequences optimized for breast implants are also provided.
- Processing and calculation of T1 perfusion color maps (T0, TTP, Wash-In, Wash-Out, Area-under-the-curve)

Ortho Pro

Ortho Pro provides both high-resolution and fast orthopedic imaging supporting assessment of morphology in the spine and extremities.

Features include:

- ExamCards designed for orthopedic imaging
- Sequences include both 2D and 3D methods with volumetric acquisitions.
- SE, TSE, FFE sequences, with fat-suppression provided by STIR, ProSet, SPIR and adjustable fat-suppressed method of SPAIR. Can be combined with up to 1024 acquisition resolution for improved detection in orthopedic imaging

- SENSE imaging for all Philips SENSE coils allowing faster scan times and CLEAR homogeneity correction.
- DRIVE combined with TSE allows for increased sensitivity to fluids
- Balanced FFE for high-inplane and throughplane evaluation of joint diseases.
- Turbo-STIR for fat-suppressed evaluation of bone bruises.
- TSE sequence with asymmetric profile ordering lets users select TE in a fixed shot length, enabling high-resolution imaging in short scan times. Particularly useful in PDW sequences.
- m-FEE combining echos for all 2D and 3D gradient echo sequences.
- 3D FFE with ProSet for water only selective sequences. Optimizes cartilage and/or fluid imaging with high-resolution in all directions.
- e-THRIVE for 3D high-resolution fat-suppressed imaging for MR arthrograms
- MobiFlex compatible with all sequences to allow for improved Total Spine imaging to be visualized in the MobiView package for seamless single mouse-click Total-spine evaluation.
- Dynamic imaging sequences for TMJ applications in combination with specific coils allows high-resolution fast imaging scans
- Improved susceptibility reduction sequences implemented to include SENSE, modifications of water-fat shift and manipulable bandwidth for improved imaging in the presence of prosthesis.

Cardiac Pro
Cardiac Pro provides high-quality cardiac imaging supporting assessment of cardiac morphology, and functional studies of the heart and surrounding vessels.

Features include:

- ExamCards designed for cardiac imaging
- VectorCardioGram (VCG) for near-100% triggering accuracy, even for patients with pathologic ECG patterns. Provides automatic adjustment to the actual electrical axis of the patient's heart and to the specific multi-dimensional QRS waveform. Includes a four-lead cable set and Philips' patented vector processing algorithm. High R-peak detection rate results in shorter scan times.
- Black Blood Imaging for optimal myocardial imaging
- Spatial Enhancement (ECG-triggered Inversion Recovery): application of single RF inversion pulses with control of inversion times for strong T1 contrast in combination with tissue nulling. Compatible with TSE, TFE, and TFE-EPI imaging methods. Also available in a phase sensitive version (phase sensitive inversion recovery or PSIR) for increased dynamic range and more consistent results.
- 2D/3D Balanced FFE provide optimal myocardium-to-blood contrast for (functional) cardiac studies.
- All sequences are compatible with cardiac triggering, with SENSE and CLEAR homogeneity correction.
- Single Slice - Multi Phase for functional cardiac studies
- Multi Slice - Multi Phase: adds multi-slice capability to multi-phase (cine) acquisitions.
- Arrhythmia Pro arrhythmia rejection technique. Performs retrospective gating with real-time prospective updating, then rejects and reacquires atopic heart beats in real time for full R-to-R coverage.
- Infill enhances the cine viewing of cardiac studies by reconstructing additional intermediate frames. Used in conjunction with full R-to-R imaging.

Angio Pro
For high-quality fast and high-resolution imaging for both non-contrast and contrast vascular exams. Angio Pro features routine procedures built in ExamCards for vascular imaging.

Features include:

- ExamCards designed for angio imaging
- 2D and 3D sequences for Inflow techniques Contrast Enhanced and Phase Contrast Angiography sequences.
- SENSE imaging for all Philips SENSE coils allowing for increased temporal resolution or higher resolution scanning in standard scan times.
  Inflow sequences can be combined with CHARM for uniform signal intensity over large 3D volume acquisitions, TONE for improved contrast and MTC for reduction of fat Signal (peri-orbital fat)
- Inflow and PCA sequences can be combined with ECG and/or VCG triggering for optimal image quality in anatomies with pulsatile flow (popliteal or areas where retrograde flow is an issue).
- 2D/3D Balanced TFE/FFE for fast, high-resolution non-contrast enhanced vascular imaging.
- Quantitative blood and CSF flow sequences utilizing retrospective triggering PCA.
- MultiVenc PCA sequences
- Quantitative flow allows non-invasive measurements of blood flow or CSF flow in three directions, including flow maps for Doppler-like viewing.
  BolusTrak for accurate triggering of bolus arrival in contrast enhanced exams
- 3D high-resolution contrast enhanced imaging with CENTRA to allow increased spatial resolution without venous contamination (e.g., in high resolution CE Arch studies and lower leg station of peripheral run-off studies), CENTRA can also be combine d with SENSE for improved arterial vessel delineation in dynamic scans.
- Keyhole imaging to improve temporal resolution in dynamic studies.
- TRACS to accelerate time-resolved contrast-enhanced vascular imaging with a factor 16.
- MobiFlex feature in combination with multi-station compatible coils to allow for improved peripheral run-off studies through flexible coil selection, scan resolution (both in and thru-plane and automatic table movements, can be combined with the use of single mouse click multi-station viewing (MobiView) for display.

Onco Pro
Onco Pro provides high-quality assessment in all anatomical areas for better lesion visualization.
Features include:

- ExamCards designed for oncology imaging
- High gradient linearity allows for improved therapy planning and accurate QBC imaging results
- All Philips phased array coils compatible with CLEAR, SENSE for improved image quality and faster scan times
- Large Field-of-View allows for improved screening
- ExamCards for single-pass multi-station imaging with user-defined contrasts per station, supporting easier characterization of lesions.
- 1024 scan resolution for improved small lesion detection
- 2D and 3D sequences including STIR, IN/OUT of phase imaging, e-THRIVE and dynamic imaging sequences
- Dynamic scan techniques for monitoring and evaluation allow for contrast uptake kinetic viewing

- DWIBS offers body diffusion imaging supporting lesion detection.

Pediatric Pro
Pediatric Pro provides fast, patient-friendly imaging of pediatric patients.
Features include:

- ExamCards for pediatric imaging
- SofTone ensures very fast imaging combined with noise reduction techniques dramatically reducing acoustic noise.
- SENSE imaging for all Philips SENSE coils allowing faster scan times or improved susceptibility suppression.
- Sequences include SE, FFE and EPI based methods
- Fat suppression provided by STIR, SPIR, ProSet and SPAIR methods
- 3D based sequences for TSE including DRIVE for improved fluid visualization (IAC)
- Balanced FFE/TFE for high-resolution high contrast (Fetal, IAC and Spine applications)
- Single, Dual and Triple IR sequences for evaluation of gray and white matter differentiation
- Black blood imaging and 2D/3D B-FFE for optimal assessment of congenital heart disease

Capabilities:

Setup and Planning:
ExamCards (Complete automated patient studies including scanning and processing)
PlanScan (Freestyle planning of scan geometries and positions)
SameScan (Planning for follow up based on anatomical landmarks)
FlexPlan (Planning based on selection of three anatomical landmarks)
Repeat Scan (Repeats any archived study)
AutoShim (Regional shim volumes)

Acquisition:
2D (Single-slice, Multiple single-slice and Multi-slice)
3D (Single-stack and Multi-stack)
GeoLinks multistack imaging studies with different geometry / resolution parameters
Automatically process (subtract) images from multiple stacks and ability to perform multiple phase dynamics at any station
3D Multi-Chunk (Volume divided into set of contiguous 3D in scans)
Dynamic (Maximum 1024 phases)
Single- and Multi-station (Maximum of 4 stations)
MobiFlex (Multi-station advanced control)
Manual start (Controlled from the gantry or operator's console)
Matrix (Maximum 1024)
Phase matrix (Rectangular FoV, fold over suppression, zero interpolation)
Field of View

Anatomical Imaging:
Spin Echo (Single and multi-echo up to 32 echoes, and asymmetric multi-echo, T2 map generation)
Inversion Recovery (IR, STIR, FLAIR, Dual IR for fat, fluid and tissue suppression, Magnitude and Real Images)
2D/3D TSE (Snapshot & MultiShot, Single and Multi-contrast, includes all IR contrast methods above, DRIVE, Asymmetric encoding, Flip angle Sweep)
2D/3D FFE (with and without RF Spoiling)
2D/3D Balanced-FFE

2D/3D TFE (with and without RF Spoiling, T2 Pre-pulse contrast)
2D/3D Balanced-TFE
3D e-THRIVE
3D BLISS
3D VISTA
2D/3D EPI (Single Shot & MultiShot, SE and FFE readout types, FLAIR)
2D/3D GRASE (Single Shot & MultiShot, FLAIR)
Mixed Mode (Interleaved IR/SE for T1, T2, PD calculation)
Turbo factor (maximum 256)
EPI factor (maximum 255)

Angiography:
2D/3D ToF (including Turbo, gating)
PCA (including Turbo, gating and with variable VENC)
TONE optimized RF excitation profile
MOTSA (multi-chunk acquisition)
CHARM (reconstruction minimizes signal anomalies at borders of chunks)
MT (magnetization transfer)
CE-MRA
BolusTrak
MobiTrak automated table motion and image subtraction
CENTRA
TRACS
TRANCE

Diffusion Imaging:
2D/3D TSE (Snapshot & MultiShot with PhaseTrak motion correction, FLAIR)
2D/3D EPI: (Single Shot & MultiShot with PhaseTrak motion correction, SE and FE readout, FLAIR, DWIBS)
2D/3D GRASE (Single Shot & MultiShot with PhaseTrak motion correction, FLAIR)
Single and multiple b-values up to 16 per scan

Perfusion & BOLD Imaging:
2D/3D EPI: (Single Shot & MultiShot, SE and FE readout)
2D/3D PRESTO

Cardiac Imaging:
Turbo B-FFE/TFE
Turbo PCA with variable VENC
Breathhold
Single-slice multi-phase
Multi-slice multi-phase
Prospective gating
Retrospective gating (with real-time prospective updating)
Arrhythmia Pro (arrhythmia rejection technique)
InFill (reconstructs intermediate cardiac phases)
ECG Triggered Inversion Recovery

Image Acceleration:
SENSE (with fractional acceleration control)
Keyhole (SE, FFE and TFE)
k-Space Shutter (Up to 25% 3D scan time reduction)
HalfScan
Rectangular FoV
Overcontiguous Slices

Prepulses, Saturation and Contrast:
Saturation (REST, Shared REST, Positionedfreely or parallel or perpendicular to scan plane)
Fat Saturation (SPIR, SPAIR)
ProSet (Water/Fat Selection)
WATS and FATS
Black Blood
Silicon
Magnetization Transfer Contrast (MTC)
Flip Angle Sweep

Motion Correction and Control:
Gating (VCG, Respiratory, PPU)
PhaseTrak
FlowComp
PEAR (respiratory monitored phase encode ordering)
SMART (optimized temporal data collection and averaging order)

Image Optimization:
CLEAR
PicturePlus

Patient environment and patient handling

The Ingenia was designed with the patient in mind, no matter the age, size or physical condition. The Ingenia's patient environment and patient handling features enhance patient comfort and facilitate exams.

Important features:
- Lightweight, patient-conforming coils
- 70 cm bore and extra large FOV imaging space
- Digital coil management workflow
- DirectDigital RF technology digitizes the signal in the RF coil on the patient
- SmartAssist efficiency enhancing software

Benefits include:

- More comfortable exams
- Decreased need for coil positioning
- Fewer retakes
- Faster exams

Patient Comfort

- 70 cm aperture for enhanced patient comfort, patient fit and reduced anxiety
- Choice of feet-first or head-first imaging for most applications
- Whole body coverage with an effective field of view of over 2.1m (7 ft) with up to 20 stations with optional dS Whole Body coil solution

- FlexCoverage Posterior coil: Never worry about the position of the patient to this coil. No cables, no connections. This invisible, patient-friendly coil is always there when you need it.
- Lightweight, conforming coils for enhanced patient comfort and operator handling
- Ambient Ring circular light to enhance the visual openness of the system.
- Adjustable fresh air supply in 6 increments
- Adjustable variable in-bore lighting in 3 increments
- In-bore microphone and ceiling-mounted loudspeakers support two-way patient-operator communication and music.
- Hand-held technologist call button.
- Patient headset with built-in two-way communication reduces acoustic noise by up to 25 dB.
- Look-out mirror with adjustable angulation

Patient support
- Patient support enables patients weighing up to 250 kg (550 lbs) to be comfortably positioned and lifted.
- Wide table top for improved patient comfort and accommodation of larger patients
- Patient table height can be quickly lowered, providing access for compromised or non-ambulatory patients.
- Detachable tabletop can be combined with one or more FlexTrak patient transport systems for efficient patient management and rapid egress. Supported by manual mode table release.
- 200 cm scan range
- Horizontal travel of 275 cm (9 ft 1 in.) with +/- 0.5 mm (0.02 inch) accuracy
- Horizontal table speeds of up to 325 mm/s to enable fast, easy patient positioning and rapid multi-station examinations
- Ergonomically designed control units on both sides of the bore to increase operating flexibility.

Physiology measurement and gating
Wireless physiological hardware to provide synchronization for sequence triggering and gating. Wireless physiological signals can be observed on the operator's console monitor or on the optional Interventional Monitor.
- Wireless Physiology consisting of wireless Basic Triggering Unit (wBTU) and respiratory module hardware
- Physiological synchronization for sequence triggering and gating through
  - Wireless VCG
  - Wireless Respiratory
  - Wireless PPU (requires optional PPU Sensors)

PPU for Wireless Physiology

The PPU for wireless physiology package contains a peripheral pulse sensor with the following 4 different sizes: neonate, infant, pediatric and adult. This option is required to use the peripheral pulse as a means to do physiological synchronization for sequence triggering and gating. The sensor can be positioned on finger, toe or foot.
Patient accessories
Comprehensive set of patient accessories, including

- Table mattress set
- Head/leg support

- Knee support
- Positioning wedges
- Small foam wedges
- Set of sandbags
- Set of patient fixation straps

Computer systems
Host Computer

- >2.4 GHz Quad Core Intel processors, 64 bits
- 8 GB host memory
- >= 150 GB Image Disk
- >= 150 GB Software Disk
- >= 23-inch LCD wide-screen format monitor enabling large overview
- LCD wide screen resolution: 1900 x 1200
- Windows XP OS 64 bits
- External storage via USB port
- DVD reader for software loading
- 10BaseT, 100BaseT or 1000BaseT connections.

Recon Computer

- >2.4 GHz Dual Quad Core Intel processors, 64 bits
- 24 GB internal memory
- Windows XP OS 64 bits
- Fast reconstruction of demanding imaging techniques (interactive real-time, dS-SENSE, high resolution and high coil receiver count).
- Reconstruction speed: Up to 12000 recons per second (256 FFT, 100% FOV)

Connectivity / interoperability

The MR environment fits seamlessly into local network environments. Communication is performed via DICOM protocols. The system can be configured for safe storage of MR images and other patient data in departmental information systems and PACS. The MR workspace conforms to the new Enhanced (multi-frame) MR DICOM standard, which improves the performance of data transfer of large data sets and fully supports information associated with diffusion and spectroscopy.
The system can be configured (per node) to support standard DICOM MR image transfer or DICOM Enhanced MR Image Transfer. If a receiving node does not support DICOM Enhanced MR, standard DICOM MR Images will be transferred.

- DICOM Workflow Management:
  - DICOM Modality Worklist
  - DICOM Modality Performed Procedure Steps
  - DICOM Storage Commitment
- DICOM Send/Receive:
  - DICOM Enhanced MR:
    - Export / Import of DICOM Enhanced MR Images
    - Export / Import of DICOM MR Spectroscopy

- Export / Import of DICOM Raw
- DICOM MR:
  - Export / Import of DICOM MR Images
  - Export / Import of Philips Private MR Series Data
  - Export / Import of Philips Private MR Spectrum Data
  - Export / Import of Philips Private MR ExamCards Data
- DICOM SC:
  - Export / Import of SC (color) Image Data
- DICOM Grayscale Softcopy Presentation State:
  - Export / Import of Grayscale Softcopy Presentation State
- DICOM Query / Retrieve of Philips MR data, all the exported image types
- DICOM Print
  - Grayscale Softcopy Presentation State with preset window settings as on the console
  - Basic Grayscale Print
- DICOM Media
  - MR Studies on DVD (Read / Write)
- IHE Integration Profiles
  - Scheduled Workflow
  - Patient Information Reconciliation
  - Consistent Presentation of Images
  - Basic Security
  - Consistent Time

Full information on compliance with DICOM standards and available functionality is contained in Philips' DICOM Conformance Statement.

Installation: EasySite and PowerSave

EasySite

System design for rapid installation times, compact siting footprint and low ceiling heights.
- Installation times as short as 7 days, based on prepared site conditions.
- Industry's lightest wide-bore magnet enables siting on upper floors.
- Siting (exam/technical/control room) as little as 27 sq. m..
- Low ceiling height
- Low transport height for easy facility access
- System / building vibration transfer is minimized by special vibration pads that require no facility adaptations.

PowerSave

Unique, efficient design combined with smart power management of the high power sub-systems (gradient amplifiers, RF amplifiers, etc.) enable reduction in power consumption by up to 50% without affecting overall performance.

Standard office table for MR-operator

- Table surface 160x100 cm
- Adjustable Height

DVD –PC

Local media storage option intended for burning and reading DICOM data on medical grade DVD's. This option enables the operator to burn DVD's directly or prepare multiple DVD's for burning later.
- Includes DICOM viewer on every DVD created
- Create multiple DVD's for exchange with off-line stations
- Burn DVD's independently of other scanner functions.
- 160 GB hard drive
- Dimensions (hxwxd): 10x34x38cm

Patient Arm Support

The arm support is designed to work in conjunction with the existing MR tabletop to provide additional support for a patients arm when injections are required. The support easily slides under the patient.

Features:

- Transparent arm support contoured to match the MR table-top
- Positioning on either side of table

Educational Entitlements

Essentials OffSite Education: The MR Essential course is a prerequisite to attending the MR Advanced course, 989801292088. Philips will provide up to two (2) technologists, as selected by customer, with in-depth didactic, tutorial, and hands-on training covering basic functionality and work-flow of the magnetic resonance imaging system. This thirty-six (36) hour class is located in Cleveland, Ohio, and is scheduled based on your equipment configuration and availability. Due to program updates, the number of class hours is subject to change without notice. Customer will be notified of current, total class hours at the time of registration. In order to provide trainees with the ability to apply all fundamental functioning on their system, and to achieve maximum effectiveness, this class should be attended no earlier than two weeks prior to system installation, and trainee should have prior knowledge of basic MR theory. CEU credits may be available for each participant that meets the guidelines provided by Philips.

Handover OnSite Education: Philips Education Specialists will provide twenty-eight (28) hours of education for up to four (4) students, as selected by customer. Students should attend all 28 hours, and must include the two OffSite education attendees. This course does not cover Cardiac or Spectroscopy. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. Note: Site must be patient-ready, including all inspections approved, all accessory equipment installed and functioning (injectors, hard copy units, film processors and physiologic monitors), and all supplies stocked. Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

FollowUp OnSiteEducation: Philips Education Specialists will provide two (2) separate twenty-eight (28) hour sessions of Follow-Up Education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. Customer must have operated the system for at least 30 days. CEU credits may be available for each participant that meets the guidelines provided by Philips. Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

PLEASE NOTE for all OnSite Education: It is recommended to purchase additional training, 16 or 24 hours, for customers purchasing specialist packages and requiring dedicated training for Breast Imaging, BOLD fMRI, or MultiNuclear Spectroscopy.

Advanced OffSite Education: Philips will provide up to two (2) technologists, as selected by customer, with a series of lectures and hands-on experience introducing the advanced concepts and theory of MRI for Achieva, Intera and Panorama HFO systems. Philips recommends that the attendee of this course has previously attended the MR Essentials class. This twenty-eight (28) hour class is located in Cleveland, Ohio, and is scheduled based on your equipment configuration and availability. Due to program updates, the number of class hours is subject to change without notice. Customer will be notified of current, total class hours at the time of registration. This course should be attended at least thirty days after OnSite handover training. CEU credits may be available for each participant that meets the guidelines provided by Philips.
 Advanced OnSite Education: Philips Education Specialists will provide two (2) separate twenty-four (24) hour sessions of advanced education for up to four (4) students, as selected by customer. This training is recommended to be scheduled after the user is proficient on the basic MR system. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. Additionally, Philips recommends that a minimum of one attendee has attended all previous training entiltlements for your system. Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

PLEASE NOTE: For all OffSite Education listed above: CEU credits may be available for each participant that meets the Guidelines provided by Philips.   Travel and lodging are not included, but may be purchased through Philips. It is highly recommended that 989801292093 (MR Full Travel Pkg OffSite) is purchased with all OffSite courses. Due to program updates, the number of class hours is subject to change without notice. Customer will be notified of current, total class hours at the time of registration. OffSite training is scheduled based on your equipment configuration and availability.

MR Registry Review: This self study program consists of twelve (12) comprehensive study modules that are delivered in a reference binder. Each module contains thirty to eighty pages of easy-to-follow text, with an abundance of illustrations, images and summaries, written in the language of the clinical technologist. This course is designed to help the technologist prepare to pass the ARRT's post-primary exam in MR, and has been accredited for twenty-six (26) Category A CE credits. Credits are earned by passing a post-test for each study module.

MR Cross Trainer: This self study program consists of six (6) comprehensive study modules that are delivered in a convenient reference binder. Each study module contains thirty to sixty pages. The program is designed to acquaint the technologist with important principles, equipment and exams of MR. This course has been accredited for eighteen (18) Category A CE credits, that are earned by passing a post-test for each study module.

MR Sectional Anatomy & Imaging Strategies: This self study program consists of six (6) comprehensive study modules that are delivered in an easy to follow book format. Each study

module contains thirty-five to seventy pages. The first study module introduces the technologist to the concepts and terms used when working with sectional anatomy imaging modalities. Study modules 2-6 focus on specific regions of the body by identifying key anatomical structures and their physiological significance as well as practical sectional imaging strategies. This course has been accredited for eighteen (18) Category A CE credits, that are earned by passing a post-test for each study module.

| 2 | dS Torso 1.5T | 1 |

An integrated coil solution for body and peripheral vascular related imaging. It includes the FlexCoverage Anterior coil. Combined with the FlexCoverage Posterior coil it enables 60 cm coverage, with a maximum of 32 channels.

The flexible, lightweight easy-to-position FlexCoverage Anterior coil is designed to conform both in right-left and foot-head directions for almost any patient. This enables large coverage and comfortable strap-free operation.

- Coverage: 60 cm
- Maximum nr. of channels: 32
- Main applications: Torso, Chest, Pelvis, Heart, Peripheral-vascular
- Coil type: Integrated
- Lightweight coil(s)
- DirectDigital sampling in the coil where the MR signal is at its purest, without loss in the RF chain, enabling:
  - Enhanced SNR
  - dS-SENSE enhanced parallel imaging performance
  - dS-SENSE capable in AP, LR and FH directions
- Single FlexConnect coil connection and cable for fast and easy setup

| 3 | dS Knee 16ch 1.5T | 1 |

Coil designed for ultra-high SNR imaging over an extended field of view of the knee and other extremities. Two overlapping rings of eight elements extend the coverage area and minimize the need for precise positioning. dS-SENSE enhanced parallel imaging can be selected in all directions. The dS Knee 16 ch has a split design for easy patient setup and an ergonomically ramped insert for patient comfort.

- Coverage: 20 cm
- Maximum nr. of channels: 16
- Main applications: Knee, extremities
- Coil type: Dedicated
- dS-SENSE enhanced parallel imaging performance

| 4 | dS Breast 7ch 1.5T | 1 |

A rigid, open-designed coil that can be used alone or in combination with FlexTrak Mammo. The dS Breast 7ch coil is designed for optimal coverage of the axilla region and outstanding performance. The dS Breast 7ch has an open design and will be delivered with compression plates that can be applied in either LR or FH direction. If applied mildly the compression plates will help to reduce motion of the breast therefore contributes to improved image quality. Mild compression in FH also reduces the imaging volume in FH direction which might help to shorten the scan time.

- Coverage: Bilateral

- Maximum nr. of channels: 7
- Main application: Breast
- Coil type: Dedicated
- dS-SENSE enhanced parallel imaging performance. SENSE can be applied in LR and FH direction for enhanced resolution or speed
- Very comfortable coil with optimized patient comfort ramp
- Includes immobilization plates (for both LR and FH direction) to reduce motion artifacts and accommodate a large range of patient sizes
- The dS Breast 7ch coil is compatible with Breast Biopsy Kit (NMRB280).
- Integrated LED light offering clear view during biopsy procedure

5   **dS Wrist 8ch1.5T**   **1**

Coil that closely fits the left or right wrist for high SNR. This design provides the high SNR needed to acquire images with a small FOV. It has a one piece, ovoid, hinged design for easy patient set up. Good quality imaging can be obtained with the coil at the patient's side. The coil attaches to a rigid base plate for fixation to reduce patient motion artifacts.
- Coverage: 8 cm
- Maximum nr. of channels: 8
- Main application: Wrist
- Coil type: Dedicated
- dS-SENSE enhanced parallel imaging performance

6   **dS FootAnkle 8ch 1.5T**   **1**

Ski-boot shaped coil for optimum coverage of the ankle and entire foot up to the toes. The coil design and element layout allow for either large FOV imaging of the whole foot or small FOV high resolution imaging for ankle joints. The coil is easy to set up and can be used with the patient's foot vertical or up to 15 degrees plantar flexed.
- Coverage: 30 cm
- Maximum nr. of channels: 8
- Main applications: Foot, Ankle, Toes
- Coil type: Dedicated
- dS-SENSE enhanced parallel imaging performance

7   **dS Shoulder 8ch 1.5T**   **1**

Coil designed for high uniformity throughout the shoulder joint, with excellent penetration into the labrum. The coil consists of a base plate and an adjustable shoulder cup which can be raised and pivoted for comfortable positioning. Adjustable design for a comfortable fit for either left or right shoulder.

- Coverage: 12 cm LR
- Maximum nr. of channels: 8
- Main application: Shoulder
- Coil type: Dedicated
- DirectDigital sampling in the coil where the MR signal is at its purest, without loss in the RF chain, enabling:
  - Enhanced SNR
  - dS-SENSE enhanced parallel imaging performance
- Single FlexConnect coil connection for fast and easy setup

8   **FlexTilt**   **1**

The FlexTilt is an easy to use device which allows the dS Base in combination with the dS Head and dS HeadNeck coils to be tilted. The coils can be tilted up to 18 degrees in incremental steps of 2 degrees.

9   **MammoTrak Biopsy Kit 1.5T**   **1**

Biopsy kit compatible with 1.5T, allowing the physician to practice a breast biopsy procedure on a phantom before starting the procedure on patients. Next to that the biopsy kit contains a full array of approved and sterile needles, needle blocks and other sterile disposables.

Biopsy Kit includes:

- 1 Breast Biopsy Phantom
- 3 Grid M-L Immobilization plates
- 3 Grid CC Immobilization plates
- 3 Pillar M-L Immobilization plates
- 3 Pillar CC Immobilization plates
- 1 Post & Pillar assembly, M-L
- 1 Post & Pillar assembly, C-C
- 2 Coaxial Needles 12G 130mm
- 1 Wire Localization Needle 18G 100mm Single Hook
- 1 Semi-Automatic Biopsy Set 14G 130mm
- 1 Fully Automatic Biopsy Set 14G 115mm
- 1 ClipLoc Soft Tissue Marker 18G 130mm
- 3 12 G Needle Blocks
- 3 18 G Needle Blocks
- 3 12 G Needle Sleeves
- 3 18 G Needle Sleeves
- 3 Needle Hub Assemblies
- 1 Breast Blocker
- 1 Fiducial Sleeve
- 1 Fiducial Marker Block
- 4 Fiducial Assemblies

NOTE: This Breast Biopsy kit is compatible with the following 1.5T Breast coils:

- 7ch MammoTrak
- 7ch + 16ch MammoTrak
- 7ch MammoTrak coil
- 7ch dS Breast coil
- 7ch FlexTrak Mammo
- 7ch + 16ch FlexTrak Mammo
- HA 7ch FlexTrak Mammo
- HA 7ch + 16ch FlexTrak Mammo

10   **SMARTEXAM BREAST**   **1**

SmartExam Breast assists beyond the automatic planning of Breast ExamCards. This new technology uses a sophisticated image based shimming technique in which the contour of the breast and thorax wall is used to automatically adjust the shimming per patient. With SmartExam Breast consistent fat suppression and reproducible image quality can be achieved. Excellent quality is obtained independent of patient positioning or breast implants.

SmartExam Breast seamlessly integrates with ExamCards, enabling automatic planning, scanning and processing of complete patient studies with a single mouse-click.
SmartExam Breast features:

- Automated planning for unilateral or bilateral breast imaging
- Patient-adaptive shimming, including 2nd order shimming at 3.0T, for optimal fat suppression and image quality.
- Interactive f0 determination for manual shim setting
- Optimized SENSE reference scan with B0 shim map
- Compatible with all breast coils and MammoTrak
- Compatible with MultiTransmit at 3.0T

SmartExam provides:

- Assistance to obtain optimal image quality
- Reproducible, consistent clinical results independent of operator.
- Increased efficiency and throughput and easier staff training.

Note – This option requires R3. Customers currently at R2.6 will be brought to the required software and hardware level. R3 includes: ExamCard locking, 3D Brain VIEW for Scantools Pro and Scantools Premium users.

| 11 | FIBERTRAK SPECIALIST | 1 |

The FiberTrak Specialist package provides advanced imaging and processing methods for assessment of white matter fiber tracts, which conduct information impulses throughout the brain. All acquisition techniques are automatically executed by ExamCards.
This package features:

Diffusion Tensor Imaging (DTI) extends the functionality of Diffusion Weighted Imaging (DWI) to measure the directional dependence of the diffusion coefficient in tissues. DTI data enable the creation of Fractional Anisotropy (FA) maps and visualization of the white matter tracts using fiber tracking.
Features:

- Multi-directional DTI imaging sequences using the full range of available diffusion acquisition methods, and including multiple b-value sequences.
- Selectable number of diffusion directions (up to 32)
- Automatic calculation of Fractional Anisotropy (FA) maps available in ExamCards.

With fiber tracking, the DTI sequence can be processed to visualize white matter fiber tracts.

Key features:

- Advanced 3D visualization of (multiple) white matter fiber tracts in the brain with minimal mouse interactions including:
  - Overlays of anatomical and Bold Analysis datasets
  - 3D display movies of the entire white matter fiber structures
  - 2D cross sections of anatomical and Bold Analysis datasets
  - 2D color cross sections with fiber tracts
- Easy navigation and viewing
- Single-click fiber tracking, ROI fiber tracking, and multiple ROI fiber tracking
- Statistics on voxels fibers and ROIs

All data created can be transferred via DICOM to PACS or other workstations and all results can be converted to Windows-compatible formats.

12   **Cardiac Acquisition**   **1**

Cardiac Acquisition provides all cardiac acquisition functionality for temporal and spatial cardiac tissue studies, tagging and real-time interactive imaging. Compatible with single breath-hold or free breathing examinations, all acquisition techniques are automatically executed by ExamCards.
Cardiac Acquisition includes the following acquisition techniques:

Real-time Interactive Imaging:
Enables the user to plan any clinical cardiac view in real-time by changing the geometry and contrast parameters during scanning with immediate feedback.
Key features:

- Real-time visual feedback - what you see is what you get
- Full control for navigation through the heart
- Geometry manipulation
- In- or through-plane translation
- Image rotation around any axis
- Contrast manipulation
- Trigger delay adjustments
- Prepulse delay manipulations and real-time on/off switching
- Compatible with all sequences and SENSE

Cardiac temporal imaging:
Cardiac temporal imaging enables fast, time-resolved, multi-slice, T1-weighted studies with full heart coverage. Myocardial signal changes over time serves to distinguish areas of abnormal behavior. This tool provides a powerful, complementary technique to cardiac function studies during both rest and stress. All acquisition techniques are automatically executed by ExamCards.
Key features:

- High-speed multi-slice sequences with up to 8 slices
- Optimized pre-pulse inversion and saturation
- Interleaved slices within a heartbeat
- Compatible with multi-slice TFE, TFE-EPI and Balanced FFE

Cardiac spatial imaging:
Spatial imaging (ECG-triggered Inversion Recovery) applies single RF inversion pulses with control of inversion times for strong T1 contrast in combination with tissue nulling. Compatible with TSE, TFE, and TFE-EPI imaging methods. Also available in a phase sensitive version (PSIR, Phase Sensitive Inversion Recovery) for increased dynamic range and more consistent results. PSIR acquires each TFE-shot twice after the inversion pre-pulse is applied: once in the first RR-

interval and once in the second RR-interval. The phase information of the signals from the second TFE-shot is used to generate a corrected real image of the data from the first TFE-shot. PSIR offers optimal T1-weighted contrast obtained over a larger range of inversion delay times. All acquisition techniques are automatically executed by ExamCards.
Key features:

- Multi-slice and 3D IR-TFE T1-weighted imaging sequences
- Full heart coverage
- Compatible with single breath-hold or free breathing examinations.
- Clinically tested predefined protocols
- Look Locker method for optimal evaluation of inversion delay time

Cardiac Tagging:
Cardiac Tagging provides a powerful tool for the analysis of regional myocardial wall motion, with visualization of both radial wall motion and wall torsion dynamics throughout the cardiac cycle. Cardiac tagging provides a quality of motion visualization unique to MR imaging.
Key features:

- Myocardial saturation lines or grids for tissue motion visualization
- Compatible with FFE, TFE and FFE-EPI imaging methods
- Optimized protocols for myocardial wall motion studies
- Cine display for easy motion-visualization

| 13 | BOLD SPECIALIST | 1 |

The BOLD Specialist package provides specialized acquisition sequences for performing BOLD (Blood Oxygen Level Dependent) studies to localize T2* task-related signal changes in the brain. All acquisition techniques are automatically executed by ExamCards.
Features:

- High temporal resolution dynamic single slice, multi-slice FFE or FFE-EPI sequences. (Also included in ScanTools PRO)
- Protocol-controlled trigger interface for integrated BOLD analysis environment.
- Allows acquisition of up to 16,000 images.

IView BOLD

The IView BOLD Analysis package for the MR console provides real-time processing of functional BOLD MR data sets into functional activation maps, enabling clear visualization of task-related areas of activation.
Features:

- Flexible and intuitive paradigm creation interface, allowing retention of paradigm lists for evaluation. Paradigm definitions can include filtering, clustering, default threshold settings and interleaved tasks.
- Time Intensity Diagrams (TID) in real-time.
- Real-time computation of statistical parameter maps to visualize and quantify areas of neural activity
- Real-time image registration during the study, including saving of original and registered data.

- Color-coded image maps including T-Test statistics
- DICOM-compatible color-overlaid or numerical results of functional MR experiment.

All data created can be transferred via DICOM to PACS or other workstations and all results can be converted to Windows-compatible formats.

14   **SPECTROSCOPY SPECIALIST**   **1**

The 1H Spectroscopy Specialist package includes a complete range of single voxel, multi-voxel and multi-slice proton spectroscopy acquisition methods. All acquisition techniques are automatically executed by ExamCards.
Key features:

- ExamCard-based spectroscopy acquisition:
  - Fully integrated into the acquisition user interface
  - Planning on survey images including free angulations of spectroscopic volumes
  - Easy scanning, planning and reconstruction
- Short TE spectroscopy with STEAM volume selection (minimum TE < 10 ms)
- PRESS volume selection
- 2D, Multiple 2D and 3D spectroscopic imaging
- SENSE 2D and SENSE 3D Spectroscopic imaging
- 2D and 3D Turbo Spectroscopic Imaging
- Combination of Turbo Spectroscopic Imaging and SENSE to even further reduce acquisition time
- Anisotropic matrix to reduce scan time
- Automated water suppression and MOIST, a unique (adiabatic) water suppression technique which is insensitive to B1 and T1.
- Dynamic single voxel spectroscopy
- Multiple REST slabs suppression, including circular REST
- Can be used for any anatomy
- Can be used with any coil

SpectroView:
The SpectroView Analysis package enables visualization and processing of all spectroscopic data in just a few mouse-clicks.
Key features:

- SpectroView data processing and viewing environment enabling presentation of spectro data after processing in the form of:
  - Graphs
  - Tables
  - Ratio and metabolite images in color overlay
  - Grids on reference images including corresponding spectra
  - Processed and fitted spectra
  - Metabolic peak levels

All data created can be transferred via DICOM to PACS or other workstations and all results can be converted to Windows-compatible formats.

15   **ASL SPECIALIST**   **1**

The ASL Specialist package enables acquisition of exogeneous perfusion dynamic maps without the administration of contrast agent. As the ideal delay time for optimal perfusion assessment depends on the individual vascular anatomy of a patient, multi-phase ASL displays perfusion information at different delay times, allowing to select an optimal time-point for diagnostic decision making.

This method applies slabs and pre-pulses to visualize multi-slice, single and multi-phase perfusion. An ASL Plug-In to Image Algebra allows for post processing.

- Single-phase ASL
- Multiple-phase ASL
- ASL post-processing Plug-In for Image Algebra

16   **mDIXON Body Specialist**   **1**

mDIXON is a technique that produces images with water signal, fat signal and images with water and fat signals in and out of phase from a single 3D sequence. mDIXON can be used for torso imaging with the SENSE XL Torso coil (for Achieva systems), SENSE Torso16 coil (for Multiva systems) or dS Torso coil/dS WholeBody coil (for Ingenia systems). The water only images may provide improved fat suppression over large fields of view when compared to more conventional spectral suppression fatsat techniques. mDIXON is designed with an unrestricted echo-time (TE) approach to provides more freedom in the optimization of scan times and SNR. For Multiva and Achieva systems the Recon Excel option is a prerequisite. For Multiva systems SENSE HeadSpine16 coil is a prerequisite.

Note - This option requires >= R3. Customers currently at R2.6 will be brought to the required software and hardware level. R3 includes: ExamCard locking, 3D Brain VIEW for Scantools Pro and Scantools Premium users.

17   **HA FlexTrak**   **1**

Dockable patient transport system for simplified patient preparation, handling and transportation from preparation room to the MR scanner, without repositioning the patient.

- HA: Height-adjustable (49cm min. support height) to facilitate easy patient transfer
- Lightweight, easy to maneuver FlexTrak dockable patient transport system docks and undocks quickly and easily with patient support and table top. Docking is possible from both sides.
- Patient and coils can be prepared outside the MR room. No need to remove coils or to reposition patients.
- Integrated coil connections on table and FlexConnect connectors for efficient patient management and rapid evacuation.
- Easy to use foot pedal locks wheel direction during transport or brakes the FlexTrak while standing still.
- IV pole included
- When the FlexTrak is positioned and locked against a wall, an adjustable side-rail can be used to prevent a patient from falling.
- Optional second FlexTrak offers economical solution to allow improved throughput.
- 250 kg / 550 lb capacity

18   **Table Top**   **1**

Ultra-thin table top that maximizes bore space. Includes coil connections directly on the table top for fast and easy setup.

- Ultra-thin design ensures minimal distance between patient and FlexCoverage Posterior coil for optimal SNR
- Ultra-strong design supports patients up to 250 kg (550 lbs)
- Wide table for enhanced patient space and comfort
- Easily removed for patient transport using the optional FlexTrak patient transport system

19   **Vascular Accessories**   **1**

Comprehensive set of Vascular accessories, including:

- Arm Support to provide additional support for a patients arm when injections are required. The support easily slides under the patient and can be positioned on either side of table.
- Anterior coil frame to create a distance between the coil and the patient thereby avoiding direct contact (e.g. for peripheral vascular disease, pediatric patients).
- Feet Immobilizer to fixate the feet and lower legs in a comfortable and reproducible fashion. It is designed to reduce patient motion in peripheral vascular and whole body imaging.

20   **RF Coils Cabinet**   **1**

Cabinet for storing RF coils and accessories. Compatible with all Ingenia, Multiva, Achieva, Intera and HFO systems.

21   **Full Travel Package for OffSite**   **2**
                                 Education

Includes one (1) participant's airfare from North American customer location to Cleveland, Ohio, with lodging, ground transportation, and meal expenses. Breakfast/dinner provided by the hotel, and lunch/breaks are catered by Philips. All other expenses will be the responsibility of the attendee. Details are provided during the scheduling process. Note: Cancellation/rescheduling policy strictly enforced.

Education expires one (1) year from equipment installation date (or purchase date if sold separately).

22   **Airfare to Cleveland for**   **2**
                                 Biomed Training

Includes one (1) participant's airfare from North American customer location to the Cleveland Training Center (CTC) in Cleveland, Ohio. All other expenses will be the responsibility of the attendee. Details are provided during the scheduling process. Note: Cancellation/rescheduling policy strictly enforced. Expires one (1) year from the earlier of equipment delivery date or purchase date.

23   **Food Transpt Lodging for**   **48**
                                 Cleveland Biomed Training

Includes one (1) day of modest lodging, ground transportation, and meal expenses in Cleveland, Ohio for one (1) attendee. All other expenses will be the responsibility of the attendee. Details are provided during the scheduling process. Note: Cancellation/rescheduling policy strictly enforced. Although this part is only for one day, it is sold in multiple quantities to account for entire length of course. Expires one (1) year from the earlier of equipment delivery date or purchase date.

24   **MR8089UPDATEACHIEVAR2.6.**   **2**
                                 3TOINGENIA CTC3

This course trains the engineer on the changed hardware due to the introduction of the Ingenia system.
It explains the differences between the Achieva R2.6.3 (or higher release) scanner and the new Ingenia scanner.
Main focus is on gaining experience (hands-on) on PM & CM aspects of;
-Magnet,
-Gradient coil,
-SACU,
-Patient Support,
-IRF,
- Trolley,
-Covers,
-SW,
-Patient handling.

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IMPORTANT Notes Regarding Admission to Philips Customer Engineer Training Courses:

1. Trainee must meet all prerequisites
2. Course expires one (1) year from equipment installation date (or purchase date if sold separately)
3. Customer must sign Philips Nondisclosure statement
4. Trainee must sign Philips Nondisclosure statement
5. Customer must sign Philips terms and conditions of training

25   **MR3448ACHIEVAPLATFORMF**   **2**
               SECTC19D

Course Number:
 MR3448

System Codes
 - Achieva 1.5T R2.6.3   781296

 - Achieva XR R2.6.3   781253

 - Achieva 3.0T R2.6.3   781277

 - Achieva 3.0T TX-series   781278

 - Achieva 1.5T Conversion   781283

 - Intera 1.5T HP R2   781195(*)

- Intera 1.5T R2.6.3   781295(*)

- Intera Achieva 1.5T Pulsar R2   781171(*)

- Intera Achieva 1.5T Nova R2   781172(*)

- Intera Achieva 1.5T Nova Dual R2   781173(*)

- Intera Achieva 1.5T CV Nova R2   781174(*)

- Intera Achieva 1.5T IT Nova R2   781175(*)

- Intera Achieva 1.5T IT Nova Dual R2   781176(*)

- Achieva 3.0T R2   781177(*)

- Achieva 1.5T R2   781178(*)

- Achieva 1.5T HP R2   781196(*)

- Achieva XR 1.5T/3.0T R2   781153(*)

(*) see Note below.

Course Title:
 Achieva Platform FSE

Course Length:
 17 days

Delivery Method(s):
 e-learning modules (pre-requisites)
Instructor-led theory
Self paced lab exercises

Modality:
 MR

Location:
 CTC, PHC, SLC

Target Audience:
 Field Service Engineers

(*) Note:

System codes marked with a * represent systems with older hardware and/or software
configurations. Such configurations and the components therein may not be part of the Achieva
platform course MR3448. The components that require extra attention from the engineer have

been addressed in special e-learning modules. These e-learning modules are listed in section 'Post Course modules' of this description. The Training Path document, which can be accessed from the Academy website (Courses =>TrainingPath =>MR), contains further information about which 'post course modules' are required per group of system codes.

DESCRIPTION:

This course will educate a Field Service Engineer to operate, calibrate, maintain, diagnose and repair an MR Achieva system. The course is available at all main campuses of the Philips Healthcare Academy. Each campus offers its own specific program to respect local customs. From a content point of view, the course is identical across all campuses.

The following is a summarized and generic description of the main task objectives:

Planned maintenance (PM), with the exception of cold head maintenance. Cold head maintenance in combination with de-icing is trained in a special course, depending on the type of magnet (4K/10K), in Latham NY, USA.
Adjustments and calibrations by using documented service procedures and tools
Corrective maintenance (CM) without assistance
More complex corrective maintenance with Tier1 support
Diagnostics without assistance
More complex diagnostics with Tier1 support
Image/data processing (standard quality measurements) and analysis

This course does not include mechanical installation aspects. Training will mainly focus on self-deployment of knowledge and skills. Engineers will be encouraged to find solutions and perform tasks with original service documentation from InCenter.

In case of new systems which, from a training perspective, are compatible with the Achieva platform line, their corresponding system codes will be added to the system code list in due time.

PREREQUISITES:

CS9020 : Basic Networking
CS9027 : DICOM
MR9125: MR Safety Aspects
MR9139: MR Fundamentals and Imaging Principles
MR9140: MR Scan Sequences
MR9141: MR System Overview
MR9143: MR System Documentation

COURSE OBJECTIVES:

Understand the MR fundamentals and imaging principles.
Understand the basic MR scan sequence characteristics for Spin Echo, Fast Field Echo and Inversion Recovery.
Understand the main system components, their interconnections, and their physical location in the system.
Learn how to perform planned (PM) and corrective maintenance (CM) on the following system components and/or processes:
Computer system
DICOM
Gradient system
Liquid Cooling system
Magnet system (4K and10K, incl.compressor)
Magnet ramping
Magnet shimming (4K and 10K)
Mains Distribution system
Patient support
Patient communication
Physiology (triggering)
Preparation phases
RF system (incl. RF coils, RF amplifiers, System Filter Box)
Software
System documentation
Technical Image Quality
Fault Finding
Connectivity
Scan Sequences (incl. SENSE)

POST COURSE MODULES:

"Older" Intera Achieva system hardware e-learning modules:

MR9102: Gradient Amplifier Copley 274
MR9121: Liquid Cooling cabinet I (LCC v2 & v3)
MR9110: RF Tube Amplifiers MKS S21-S22-S23-S24-S26
MR9118: Gradient Adjustments
MR9130: Introduction to Achieva 3.0T TX
MR9131: Copley 271 and 281 Gradient Amplifiers

MR Options e-learning modules:

MR9129: MR MammoTrak
MR9114: Ambient Experience suite

MR Intera system e-learning courses:

MR9112: MR B version Data Acquisition System (BDAS)
MR9107: MR VMS course
MR9101: Intera update R7 to R8
MR9106: Intera 3Tesla system

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3.   Customer must sign Philips Nondisclosure statement
4.   Trainee must sign Philips Nondisclosure statement
5.   Customer must sign Philips terms and conditions of training

26   **MR Stereo - RadioCombo**   **1**

- Model Two Stereo Radio
- Model CD
- The REC fixed-level line out
- One (1) Power Supply
- User Guide
- Warranty Card
- Adhesive Backed Rubber Feet
- External Wire FM Antenna
- Remote Control (Battery Included)

27   **Spectris Solaris EP Injector**   **1**

The MEDRAD Spectris Solaris EP MR injection system offers Enhanced Performance capabilities designed for use with scanners up to and including 3T with uncompromised ease of use and more flexibility than ever before. The injector delivers precisely timed injections for performing contrast enhanced MR exams to include, MRA, Dynamic and functional procedures with consistent and reproducible results.

Key features include:

- 3T compatibility
- Enhance performance battery with increased injections per fully charge battery
- Optional integrated Continuous Battery Charger (iCBC) increases operator efficiency by not having to change out the battery
- Fiber optic cable enables direct, reliable communication.
- Six user- programmable phases for added programming flexibility
- Hold or Pause phases for programming delay type and time.
- Keep- Vein- Open (KVO)- Function maintains line patency. KVO function operates independently from the injection profile.
- Large 115 ml syringe holds sufficient saline for longer KVO and multiple injections.
- Continuous status display on optimized color touch screen.
- Disposable syringe set SSQK 65/115vs.

- One- year warranty.
- Installation included in purchase of injection system.
- Applications Training included with purchase of injections system.

Control room unit

- Dimensions (H x W x D):
- 279 mm x 305 mm x 267 mm •
- (screen in up position)

Integrated Continues Battery Charger (iCBC)

- iCBC provides maximize operator flexibility by not having to change battery
- Flexible installation, in-room or out-of-room

Battery charger

- Dimensions (H x W x D):
- 40 mm x 77 mm x 129 mm

Scan room unit

- Dimensions (H x W): 1327 mm x 489 mm x 546 mm
- Volume Syringe A: 0.5 ml to max. syringe volume in 0.1 ml increments between 0.5 and 31 ml, 1 ml increments for 31 ml and above
- Volume Syringe B: 1 ml to max. syringe volume in 1 ml increments
- Flow rates: 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   for 3.1 ml/s and above
- Pressure limitation: 325 psi

| 28 | * | **Chiller for 1.0 or 1.5 or 3.0T Systems** | 1 | $38,706.60 | $38,706.60 |

Chiller hardware with specification in accordance with cooling requirements necessary for selected MR scanner. Installation cost is not included.

| 29 | | **Universal Power Supply** | 1 | | |

UPS for computer sytem

| 30 | | **Rigging Charges** | 1 | | |

Rigging of MRI into scan room

| 31 | | **Turnkey Operation** | 1 | | |

Turnkey