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Ingenia 1.5T Omega HP R5

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Ingenia Omega HP R5

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.

The R5 system software supports a new generation of clinical options for head, neck, spine, MSK and body imaging. In addition, R5 brings important improvements to the scanner GUI for better control and usability throughout the MR exam, including:

- Smart conflict management for improved workflow
- Selective archiving for better control of archiving & export
- Combined accession numbers for improved scan efficiency during procedure based billing
- AutoSPAIR, software controlled SPAIR delay time for consistent fat suppression
- Increased patient database image bulk storage capacity to $\geq 250\text{GB}$
- Patient specific safety protocols with SAR/PNS management

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 HP Gradients

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

- Peak amplitude up to 45 mT/m (78 mT/m effective), peak slew rate up to 200 mT/m/ms (346 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
- AutoSoftTone 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 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 nr. 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)

When used with an Ingenia, the head section can be tilted to provide optimal positioning and comfort for challenging patients such as Kyphosis patients. Note: this feature is only available with an Ingenia Omega or Ingenia Omega HP.

- Coverage: 30 cm (Head) and 90 cm (Total Neuro)
- Maximum nr. 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)
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- Coverage: 45 cm (HeadNeck) and 90 cm (Total Neuro)
 - Maximum nr. 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 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

** WholeBody Specialist required*

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

Semii-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

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 Exam Cards 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 and 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

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 Premium

provides the following generic workflow features for all clinical anatomies:

- ExamCards for automated scanning and processing of patient studies.
- SENSE parallel imaging methods for fast scan times, high resolution or to reduce susceptibility artifacts.
- CLEAR for signal uniformity correction based on coil-sensitivity and on patient loading.
- PicturePlus to improve appearance of images through edge enhancement and smoothing. Provides full control over all enhancement parameters, which can be applied automatically post-acquisition or as a post-processing option.
- High-resolution acquisitions and reconstruction (1024 matrix)

In addition, ScanTools Premium contains fast, high resolution imaging methods for the assessment of morphology of all anatomical areas including brain and spine, MSK, body and breast, cardiac, and various blood vessels with or without contrast agents. Specific features per clinical area are listed below.

Neuro Premium

- Sequences include SE, FFE and EPI based methods, with fat suppression methods including STIR, SPIR, ProSet and SPAIR.
- FLAIR for CSF suppression.
- Snapshot imaging, intended for uncooperative patients, eliminates the effects of patient and physiological motion through the combination of rapid TSE sequences and 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.
- Single, Dual and Triple IR sequences for evaluation of gray and white matter differentiation.
- 2D TSE with Flip Angle Sweep technology for SAR and Magnetization Transfer reduction, improving gray/white matter contrast in both T2 and FLAIR acquisitions.
- 3D based anatomical sequences including:

- VISTA, isotropic 3D TSE for volumetric acquisitions with reconstruction in any plane.
- 3D T1-TFE sequences for volumetric acquisition and reconstruction of the original dataset in any orientation.
- 3D TFE for isotropic coverage of the entire head in short scantimes using SENSE. A single data set can be reformatted into alternate planes both pre- and post-contrast, eliminating the need for additional scans.
- DRIVE for T2-weighted 2D and 3D TSE acquisitions enabling short TRs while maintaining contrast-to-noise and SNR. Used to improve fluid visualization (IAC), for short scan times and to increase resolution.
- Balanced FFE/TFE for high-resolution high contrast (IAC and Spine applications).
- ProSet water and fat excitation for spinal nerve root imaging. Combines the characteristics of the high-resolution volume acquisitions with ProSet water or fat only selection.
- Multiple radial projection myelography both with 2D and 3D sequences.
- MultiVane to correct motion for multi-shot TSE examinations with radial encoding. MultiVane delivers high resolution diagnostic images even in case of patient motion for T2, IR-real & FLAIR TSE imaging as well as gradient-echo examinations.
- Dynamic multi-slice T2*-weighted sequences based on single- or multi-shot FFE-EPI methods for perfusion and fMRI sequences.
- Single-shot EPI diffusion-weighted imaging (DWI) with three diffusion directions and up to 16 b-values, robust against motion and generating isotropic DWI images.
- 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 enables accelerated time-resolved contrast-enhanced vascular imaging. TRACS uses SENSE for image acceleration and CENTRA phase-encode ordering for optimized contrast.
- m-FFE provides unique image contrast - ranging from 2D or 3D gradient-echo sequences to the combination of echoes.
- Venous BOLD provides T2*-weighted 3D sequences compatible with SENSE. These sequences are useful for evaluating various brain anomalies associated with venous blood.
- Phase contrast (PC) sensitive imaging for the visualization of moving fluids.
- MobiFlex and MobiView, compatible with all sequences, for easy Total Spine imaging.
- T2* perfusion analysis.
- Diffusion imaging processing with automatic generation of the ADC maps.
- Perfusion tools package, enabling:
 - Dynamic multi-slice T2*-weighted sequences based on single- or multi-shot FFE or FFE EPI methods, including the PRESTO technique.
 - Processing and calculation of T1 and T2* hemodynamic maps including Mean Transit Time (MTT), Time to Peak (TTP), Time of Arrival (T0), Negative Integral (NI), Index or upslope. All post-processing can be included as an in-line step within Examcard
 - Prospective Motion Correction: accounts for subject motion by real time monitoring of motion during acquisition and adjustment of acquisition parameters accordingly. PMC enables overall improvements in image registration.
- 3D PRESTO
 - Whole brain coverage and high temporal-resolution T2*-weighted imaging for perfusion-weighted and BOLD imaging studies.
 - Higher temporal resolution and coverage compared to traditional multi-slice techniques.
 - Reduce sensitivity to susceptibility and flow artifacts associated with EPI techniques, enabling imaging throughout the brain and into the skull base.

MSK Premium

- SE, TSE, and FFE sequences, with fat suppression provided by STIR, ProSet, SPIR and adjustable fat suppression with the SPAIR method.
- Balanced acquisitions (bFFE) for high-resolution morphology scans.
- DRIVE combined with TSE to increase sensitivity to fluids (with good T2 weighting), even with short TRs.
- Turbo-STIR for fat-suppressed evaluation of bone bruises.
- TSE with asymmetric profile ordering for proton density weighted imaging of joints with higher spatial resolution or faster scan times.
- Mixed Mode (interleaved IR/SE for combined T1 & T2 map calculation).
- Multi-Echo T2 measurements (up to 32 echoes) for T2 mapping.
- 3D FFE with ProSet for water-only (selective excitation) 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 and evaluation of soft tissue lesions as well as rheumatoid arthritis.
- MobiFlex for simple visualization of total spine imaging and multiple-station long bone studies.
- Dynamic imaging sequences for TMJ or other joint studies.
- Includes protocols for imaging in the presence of prostheses, to improve susceptibility using SENSE, modifications of water-fat shift and user-specified bandwidth.
- 2K imaging offers a scan matrix of 2048 x 2048, providing high resolution even with large FOVs, or lower resolution scans with a 2048 matrix reconstruction. Compatible with all imaging methods.

Body Premium

- TSE sequences with respiratory triggering (in combination with breath hold or free breathing).
- MultiVane motion correction for T2w TSE diagnostic images, even in case of severe patient motion.
- In and out of phase FFE/TFE sequences .
- SPAIR for high uniformity fat saturation.
- e-THRIVE volumetric imaging with fat suppression, in short breath-hold times Keyhole for high temporal dynamic imaging.
- Diffusion-weighted sequences with automated creation of Apparent Diffusion Coefficient (ADC) maps.
- MRCP sequences, (radial) single shot and 3D acquisitions.
- High-resolution pelvic imaging.
- VISTA: isotropic 3D TSE pelvic imaging allowing volumetric acquisitions to be reconstructed in any plane.
- MobiView and MobiFlex for automatic composition of data sets from multi-station acquisitions into full FOV images.
- Dynamic scan techniques for monitoring and evaluation of contrast uptake viewing.
- High Resolution Diffusion / DWIBS package enables single or multi-station high resolution diffusion weighted imaging with background suppression. Patient and physiological motion is controlled by navigator-based motion correction.

- MotionTrak Body includes a real-time respiratory navigator to synchronize data acquisition to the respiratory cycle of the patient. Options include: gating, tracking, gating & tracking, triggering, triggering & tracking. Tracking improves slice accuracy position over multiple breath hold sequences. Designed for all Body applications, including diffusion and DWIBS.
- 4D-THRIVE / BLISS is a time-resolved 3D technique to drastically accelerate dynamic body and breast imaging through the combination of a keyhole method with CENTRA and SENSE. Combines high spatial resolution with high temporal resolution to facilitate acquisition of multiple dynamic volumetric data sets per breath-hold.

Breast Premium

- SPAIR for high uniformity fat saturation.
- e-THRIVE for volumetric coverage with uniform fat suppression.
- BLISS, two bilateral sagittal volumes within a single acquisition.
- Diffusion-weighted sequences with automated creation of Apparent Diffusion Coefficient (ADC) maps.
- Silicone-Only sequences optimized for breast implants.
- 4D-THRIVE / BLISS is a time-resolved 3D technique to drastically accelerate dynamic body and breast imaging through the combination of a keyhole method with CENTRA and SENSE. Combines high spatial resolution with high temporal resolution to facilitate acquisition of multiple dynamic volumetric data sets per breath-hold.

Cardiac Premium

- Black blood prepulses to suppress blood signal for optimized myocardial and lumen visualization.
- Multi Slice / Multi Phase for function studies.
- Retrospective triggering with real-time prospective updating for full R-to-R coverage of function studies.
- Temporal profile sharing for playback frame rates higher than acquisition frame rates.
- VCG gating for robust ECG gating and triggering (includes a four-lead cable set).
- ECG-triggered STIR (inversion recovery TSE) including black blood imaging (triple IR) < LI>ECG-triggered Inversion Recovery (including PSIR) for myocardial tissue characterization.
- Non-invasive quantitative flow measurements of blood, including overlaid color-encoded flow maps on the console.
- k-t BLAST provides up to five fold acceleration using an alternative parallel imaging technique employing undersampling in time and space. Suited for dynamic and real-time cardiac studies as well as single breath hold, multi-slice cine studies. Can be combined with most other imaging methods.

MRA Premium

- 3D FFE sequences for contrast-enhanced MRA, including assessment of carotids, peripherals and renal arteries.
- Quantitative flow with variable VENC values for non-invasive measurements of blood flow in three directions.
- 2D/3D Balanced TFE/FFE for fast, high-resolution non-contrast enhanced vascular imaging.
- Phase-Contrast Angio for imaging of brain vasculature.
- TRANCE for 3D high contrast TSE acquisitions without vascular contrast agents.

- Time-of-flight (inflow) sequences with TONE to improve contrast and MTC to reduce periorbital fat signal.
- CENTRA for 3D high-resolution contrast enhanced imaging to allow increased spatial resolution without venous contamination.
- Keyhole imaging to improve temporal resolution in dynamic studies.
- BolusTrak for synchronization of high-resolution CE-MRA acquisitions with a real-time fluoroscopic display of bolus arrival in the area of interest.
- MobiView for automated composition of multi-station acquisitions (e.g. MRA runoffs) into single images.
- MobiFlex for setup and acquisition of complex multi-station exams, combining different FOVs, resolution, geometries and SENSE acceleration factors.
- VCG gating for robust ECG gating and triggering (includes a four-lead cable set).
- 4D-TRAK is a scan method for fast, dynamic CE-MRA combining CENTRA, Keyhole and SENSE. Provides high spatial and temporal resolution simultaneously for a variety of CE-MRA applications, including evaluation of brain AVM, Subclavian Steal Syndrome, congenital heart disease or hemodialysis shunts. Can be combined with MobiFlex for direct visualization of dynamic peripheral vascular studies.

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
- 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.
 - Up to 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.

** WholeBody Specialist required*

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.

mDIXON Body Specialist

mDIXON produces 4 image types from a single 3D sequence: water only, fat only, in phase and out of phase. mDIXON can be used for abdominal imaging on Achieva systems in combination with the SENSE XL Torso coil, and on Ingenia in combination with the dS Torso coil/dS WholeBody coil. Water only images provide improved fat suppression over large field of views

when compared to more conventional spectral fatsat techniques. mDIXON is designed with an unrestricted echo-time approach to provide more freedom in the optimization of scan times and SNR. For Achieva systems the Recon Excel option is a prerequisite. Note: This option requires >= R3.

mDIXON TSE Specialist

mDIXON TSE specialist enables:

- A fast and sharp 2-point DIXON technology for TSE sequences.
- Robust fat-free TSE imaging over large FOVs and challenging anatomies such as Head/Neck, Spine and MSK.
- Four contrasts (Water, Fat, In-phase and Out-phases simultaneously in 1 scan.
- Scans times and resolutions comparable to conventional fat sat techniques.

MultiVaneXD

MultiVane XD is an enhanced Multivane technique for Multi-slice TSE and for Multi-slice FFE techniques, suitable for all anatomies. It provides an enhanced Multivane motion control algorithm especially suited for gross motion. Combinable with SENSE parallel imaging in any direction allowing for short scantimes.

SWI Specialist

The SWI specialist package enables a SWIp sequence offering:

- 3D high resolution and high contrast susceptibility weighted imaging of the brain
- High SNR thanks to a multi-echo technology
- Enhanced contrast between tissues presenting susceptibility differences such as venous blood products or mineral deposits (e.g. iron or calcium) thanks to the utilization of MR phase information
- Visualization of phase maps to further help diagnosis.

Full SmartExam Pack

The Full SmartExam Pack enables automatic planning of brain, knee, shoulder, spine and breast examinations for consistent studies with optimized scan quality, independent of patient, patient positioning or operator.

Physiology measurement and gating

Wireless physiological hardware to provide synchronization for sequence triggering and gating. Wir

less 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)

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

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.

Host Computer

- \geq 2.8 GHz Quad Core Intel processors, 64 bits
- \geq 32 GB host memory
- \geq 500GB system disk
- \geq 250 GB main image database disk (Approx. \geq 300,000 images – 256 x 256 image resolution)
- \geq 23-inch LCD wide-screen format monitor enabling large overview
- LCD wide screen resolution: 1900 x 1200
- MicroSoft Windows ® OS 64 bits
- External storage via USB port
- DVD reader for software loading
- 10BaseT, 100BaseT or 1000BaseT connections.

Recon Computer

- Fast reconstruction of demanding imaging techniques (interactive real-time, dS-SENSE, high resolution and high coil receiver count).
- \geq 6000 images per second (256 x 256 reconstructions)
- \geq 13000 recons/sec (256 FFT, 100% FOV)
- \geq 3.6 GHz Quad Core Intel processor, 64 bits
- \geq 32 GB reconstruction memory (RAM)

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 m2
- 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.

Operator console table

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 (hwxwd): 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

Clinical Education Package for Ingenia Release 5:

Customer Applications Training Fundamentals Workflow Navigator Release 4.1: This online pre-learning material will introduce the clinical handling of the MR scanner and prepare the

technologist for on-site training. The Workflow navigator will guide the technologist through specific workflow steps. This self-paced learning module is highly recommended for all Ingenia users and should be completed prior to Essentials OffSite or Handover education.

Release 5 Essentials OffSite Education: The MR Release 5 Essential course is a prerequisite to attending the MR Release 5 Advanced Concepts course. 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 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. 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. Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

FollowUp OnSite Education: Philips Education Specialists will provide twenty-eight (28) hours 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, Cardiac or Spectroscopy.

Project and Workflow Evaluation: Philips Education representative(s) conduct an eight (8) hour onsite customer MR Site/Clinical assessment; to include site demographics, workflow, identifying key contact personnel and decision makers. This process includes direct observation of customer's MR department workflow. Additionally, a copy of the Customer's MR protocol list is requested to be made available to Philips Education representative. Customer information provided during this process is the first building block for planning educational support and Clinical Exam Card configuration.

Implementation Support: Philips Clinical Education Representative supports the overall implementation of all customer training phases of the MR system handover and continued educational support. A Philips Education Representative works with the customer to design a customized MR education program and coordinate the customer training/education implementation. Implementation support includes all onsite and offsite customer training events.

Clinical Exam Card Configuration: Exam Card (MR scan protocol) Configuration process is to ensure the Philips MR system is producing acceptable image quality according to customer

preferences. Philips Clinical Education Specialist will provide sixteen (16) hours offline customized MR exam card configuration prior to onsite exam card IQ confirmation. Philips Clinical Education Specialist also conducts sixteen (16) hours onsite MR exam card configuration and image quality confirmation. This process includes Image quality acceptance made by the Customer's designated physician representative. Philips Clinical Education Specialist, working with the Customer Lead Technologist will make requisite adjustments to the exam card database in order to meet the customer's initial image quality expectations. 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.

Education expires one (1) year from equipment installation date (or purchase date if sold separately). Ref# 8556026614615622762286229-20141215

- | | | | |
|----------|----|--|----------|
| 2 | ** | T/R Interface 1.5T | 1 |
| | | T/R Interface with connector on gantry to enable connection of Transmit/Receive coils. | |
| 3 | ** | dS WholeBody 1.5T | 1 |
| | | An integrated coil solution for whole body and peripheral vascular related imaging. It includes two FlexCoverage Anterior coils. Combined with the FlexCoverage Posterior, HeadNeck and Base it enables 200 cm* coverage, with a maximum of 108 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. | |
| | | <ul style="list-style-type: none"> • Coverage: 200 cm* • Maximum nr. of channels: 108 • Main applications: Whole body, Peripheral-vascular, Torso, Chest, Pelvis, Heart • 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: <ul style="list-style-type: none"> • Enhanced SNR • dS-SENSE enhanced parallel imaging performance • dS-SENSE capable in AP, LR and FH directions • Only 3 FlexConnect coil connections and cables for fast and easy setup | |

* WholeBody Specialist required

- | | | | |
|----------|----|--------------------------|----------|
| 4 | ** | 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

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 T/R Head 1.5T 1

Transmit/receive coil, consisting of a base, sliding coil and head support, that provides excellent spectroscopy results due to its higher B1 field. In addition, it enables imaging of patients with stereotactic frames. The open design reduces claustrophobia, while ensuring good homogeneity.

- Single channel transmit
- Single channel receive
- Main applications: Head, Brain, Spectroscopy, Extremities, Patients with stereotactic frames.

8 ** 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

9 ** dS Microscopy coil set 1.5T 1

The Microscopy Coil Set contains two dedicated single-element coils. The Microscopy Coils are suited for a range of applications requiring a small field-of-view while maintaining high signal-to-noise. The smaller 23 mm coil fits around a finger for small joint evaluation. The larger 47 mm coil is well suited for small anatomical regions, such as skin imaging, eye studies, small joint assessment, superficial vessels, pediatric imaging and nipple imaging.

Features:

- Two coil inserts for scanning flat surfaces
- Coil element dimensions: 23 mm and 47 mm (inner diameters)
- Outside coil dimensions 90 x 300 x 650 mm
- Compatible with all RF platforms on 1.5T

10 ** mDIXON Body Fat Quant Spec 1

mDIXON Body Fat Quant specialist produces quantitative fat fraction maps in a single breath-hold, covering the whole liver. It is based on a 3D mDIXON sequence with multiple echoes, correcting for T2* decay and employing a multi-peak fat model. Next to the fat fraction maps, water, fat, In-phase, out-phase and T2*/R2* relaxation maps can be produced. Fat fraction maps and T2* relaxation maps can be visualized in color with quantification bar, in the MR console viewing environment or on Intellispace Portal. Note: requires mDIXON Body Specialist as a pre-requisite.

11 ** ASL Neuro Specialist 1

ASL Neuro Specialist enables:

- Non-contrast brain perfusion imaging
- A sensitive pseudo-continuous labeling technique (pCASL) providing high SNR and contrast
- Whole brain coverage with isotropic resolution
- Multi-phase ASL for dynamic perfusion assessment and selection of optimal labeling delays.
- In-line post-processing within Examcard
- Color coded ASL maps with relative quantification bar

12 ** Bold Specialist 1

The BOLD Specialist package provides:

- High temporal resolution dynamic single slice, multi-slice FFE or FFE-EPI sequences.
- Protocol-controlled trigger interface for integrated BOLD analysis environment.
- Acquisition of up to 16,000 images.
- iView BOLD analysis package providing real-time processing of functional BOLD MR data sets into functional activation maps.

13 ** FiberTrak Specialist 1

The FiberTrak Specialist package provides advanced imaging and processing methods for assessment of white matter fiber tracts in the brain. Functionalities include:

- Diffusion Tensor Imaging (DTI) (up to 32 directions and 16 b-values).
- Automatic calculation of Fractional Anisotropy (FA) maps.
- Visualization of the white matter tracts using fiber tracking.

Fibertracking key features:

- Advanced 3D visualization of (multiple) white matter fiber tracts.
- 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.
- Multiple ROI fiber tracking.
- Statistics on voxels fibers and ROIs.

14 ** Spectroscopy Specialist 1

The 1H Spectroscopy Specialist package includes a complete set of single voxel, multi-voxel and multi-slice proton spectroscopy acquisition methods executed by ExamCards.

Key features are:

- 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 and with any coil

Includes the SpectroView Analysis package for visualization and processing of all spectroscopic data. Enables 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	**	Coronary Acquisition	1
Enables non-invasive imaging of coronary arteries. Deploys 3D sequences combined with MotionTrak respiratory navigators for real-time motion correction and T2-preparation for good contrast between myocardium and vessels.			
16	**	Cardiac Expert Spec	1
Cardiac Expert Specialist adds the following cardiac MR functionality:			
<ul style="list-style-type: none"> • Acquisition of multi-slice, dynamic tissue studies with saturation prepulse (for T1 weighting). • WET saturation pulses (B1 insensitive) for uniform tissue suppression on 3.0T • Look Locker methods for determination of optimal inversion delay time. • Myocardial tagging with REST grids for regional wall motion studies. • Real-time interactive imaging. 			
17	**	StarQuant	1
Provides single breathhold, multi-echo, ECG-triggered acquisitions to provide T2*, R2*, T2 and R2 maps for assessment of myocardial tissue characteristics.			
18	**	HA FlexTrak	2
Dockable patient transport system for simplified patient preparation, handling and transportation from preparation room to the MR scanner, without repositioning the patient.			
<ul style="list-style-type: none"> • 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

19 ** 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

20 ** FlexCaddy 1

Coil storage cart which stores dStream coils and accessories to enhance workflow for a large range of clinical applications. Includes:

- IV pole
- Storage for
 - 2x Anterior coils
 - 1x Head Top / other coil
 - 1x HeadNeck Top / other coil
 - 1x Base coil
 - Accessories

21 ** Head and Arm Support 1

Dedicated Head and Arms support enabling enhanced image quality with improved patient comfort through high dS-SENSE acceleration in Body imaging. This device provides comfortable patient positioning and can be used with Head first or Feet First patient positioning. The use of high dS-SENSE acceleration in Body imaging is enabled by the design of the dS Torso coil, allowing dS SENSE factors up to 6 in RL direction.

Benefits of this approach are:

- Improved image sharpness
- Reduced image distortion
- Less # Breath Holds
- Shorter Breath Hold times

22 ** Vascular positioning pack 1

- 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.
- A Knee Support that allows for comfortable positioning of the patient to reduce patient motion

The Patient Observation Camera is a color camera including a varifocal zoom lens that can be mounted at any convenient position within the examination room to visually monitor the patient, or outside the examination room, e.g. as a surveillance camera for the prep room or the waiting area. The images are displayed on the Patient Observation Monitor (ordered separately) in the scanner control area.

- MR compatible camera
- High image quality
- Easy mounting to walls

Images from the Patient Observation Cameras can be displayed on a Patient Observation Monitor positioned at a convenient location in the scanner control area. The monitor provides full visibility of the patient in all situations that require continuous visual monitoring, e.g. pediatric examinations and cardiac stress tests, as well as monitoring of patient setup and waiting areas.

- High brightness color LCD monitor
- Tilt, swivel and height-adjust for an ideal viewing position

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.

The Anterior coil frame creates a distance between the coil and the patient thereby avoiding direct contact (e.g. for peripheral vascular disease, pediatric patients).

27	**	Full Travel Package for OffSite Education	8
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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).

28 ** MR Additional Training 28 Hrs 1
OnSite

Clinical Education Specialist will provide twenty-eight (28) hours of MR OnSite Education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information.

Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

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

29 ** MR Cardiac Imaging 24 Hrs 1
OnSite

Philips Education Specialists will provide twenty-four (24) hours of Cardiac 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, and covers all Cardiac options on your system. CEU credits may be available for each participant that meets the guidelines provided by Philips. Please refer to guidelines for more information. Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation.

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

30 ** MR Advanced Concepts 28 4
Hours OffSite

MR Advanced Concepts:

Philips will provide one (1) technologist, with a series of lectures and hands-on experience introducing the advanced concepts and theory of your Philips MRI system. It is highly recommended 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 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.

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.

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

31 ** MR Release 5 Essentials 28 6
Hours OffSite

The MR Release 5 Essential course is a prerequisite to attending the MR Release 5 Advanced Concepts course. Philips will provide one (1) technologist, 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 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. 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.

Note: 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.

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

32 ** Food Transpt Lodging for 22
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.

33 ** MR8089UPDATEACHIEVAR2.6. 1
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.

34	**	MR3448ACHIEVAPLATFORMF SECTC19D	1
		Course Number: MR3448	

- Achieva XR 1.5T/3.0T R2

(*) see Note below.

Course Title:
Achieva Platform FSE

Modality:
MR

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.

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 and 10K, 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

Premium Audio Technology Meets Compact Design

Stream tracks from online music services, relax to an internet radio program or air your digital music collection with the clarity and assurance of a high-end audio component. With wireless-capable ethernet and optional Blue tooth USB adapter you can source music from a preloaded selection of online channels- including Pandora and Last.fm. Front loading CD player, FM/AM tuner with 40 station preset memory. USB port for iPod/iPhone. Solid 2 way bookshelf speakers.

Plays Audio CD, CD-R, and CD-RW
Model # CS-N755

36	**	EmpowerMR Injector System	1
		Complete EmpowerMR Injector System System includes MR Injector Head, Hydraulic Controller, Interconnect, Remote Control, Floor Stand, Accessory Pack and Remote Desktop Mount	
37	**	A02 No Accessories	1
		Accessories included in X01 option.	
38		X01 Expression IP5 Display	1
		865471_X01 Expression Information Portal Display (IP5)	
		<ul style="list-style-type: none">• Wireless 2.4 GHz Control Room Display for the Expression MRI Patient Monitors• 19" Touchscreen• Integrated HL7 and RS232 outputs• Customizable user settings• Advanced trends and analysis reports• Compatible with optional MR Barcode scanner, printer, keyboard and mouse• Active Trend arrows• All parameters support Adult, Pediatric, Infant and Neonatal applications• Mounting options available• Includes all standard accessories	
		The Expression IP5 Display is provided with Philips standard 1 year Warranty, a copy of which is available upon request. Post warranty service may be purchased for the Expression IP5 at the point of sale. For service after the point-of-sale, please contact your local Philips dealer.	
39	**	Wall Arm, IP5, 16"	1
		Wall arm with tilt, swivel, and height adjustment for the Expression IP5.	
40	**	Chiller for 1.0 or 1.5 or 3.0T Systems	1
		Chiller hardware with specification in accordance with cooling requirements necessary for selected MR scanner. Installation cost is not included.	
41	**	Chiller Interface Panel	1
		Chiller interface panel, specification in accordance with requirements necessary for selected chiller.	
42	**	MR Mid Tier UPS 1.5T Achieva/Ingenia	1

MR Mid-Tier UPS (1.5T Achieva/Ingenia) consists of:

25 kVA UPS Cabinet
Wired: 480v AC 3 phase input, 400v AC 3 phase output
Internal Maintenance Bypass Switch
Fully rated Static Bypass Switch
Input Isolation Transformer; Output Auto-Transformer
Dimensions: 36.25"D x 20"W x 59.85H"
Weight: 998 lbs.

Battery Cabinet
12 Minutes of runtime at full load
Dimensions: 31"D x 17.2"W x 47.4H"
Weight: 880 lbs.

FA Filter
Three Phase, 100 amps per phase
Provides Protection for the input to the entire system, specifically to protect the gradients.
Dimensions: 13"D x 24"W x 30"H
Weight: 210 lbs.

MDE Control Module Breaker Upgrade (for IMDU version MRI's) OR GMDU Modification kit (for GMDU version MRI's)

Warranty: UPS and Battery Cabinet (including Batteries) - 1 Year Parts and Labor
Compatibility: Tested and approved for use by Philips Healthcare
The price includes inside delivery and startup of the power solution. For some of the larger units, rigging may be required to accomplish an inside delivery and these costs are not included. Installation is not included, except for single phase units. The customer is responsible for providing and installing any wires, conduits, distribution panel/circuit breaker changes as well as any changes to the HVAC systems and building structure supports that may be required to accommodate the power solution. Philips must review the final connections to the power solution unit before power is applied to the unit.

43	** Enhanced Warranty Terms 1
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Enhanced Warranty

The Philips Ingenia MR System will receive the following service coverage for a period of twelve (12) months after completion of installation or availability for patient use, whichever occurs first.

- Extended service coverage hours from Monday to Friday, 8am to 9pm
- Flexible Planned Maintenance scheduling from Monday to Friday, 7am to 12am and Saturday 8am to 5pm
- Onsite labor response of 2 hours
- Expedited parts delivery on same day

44	 Rigging Charges 1
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Rigging

45	 Universal Power Supply 1
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UPS

Serial Number: 535392
Manufacturer: PHILIPS HEALTHCARE

**** dS Breast Adaptive 16ch 1.5T 1**

Dedicated digital 16ch Breast coil with patient adaptive coil elements adjusting to patient's breast size for optimal image quality.

Designed to deliver highest performance in coverage of the axilla region, image resolution and imaging speed.

Full open access with axillary imaging loops for optimal visibility of this area.

The adaptive coil elements can be moved in LR direction reducing motion artifacts and accommodating a large range of patient sizes.

ds-SENSE enhanced parallel imaging performance can be applied for enhanced resolution and/or speed.

Very comfortable coil with optimized abdomen ramp, curved immobilization plates, sling pad for sternal support conforming to patient's anatomy, hand rail for patient (un)loading, movable/tilting headrest.

Optimal interventional capabilities with 16ch image quality, wide aperture openings and integrated LED light offering clear view during biopsy procedure.

A dedicated breast accessory cart is included for storage of coil/interventional accessories and easy transportation of the coil to the patient table.

The coil can be used as stand-alone or in combination with a FlexTrak trolley (not included) turning the system into a dedicated breast solution.

- Coverage: Bilateral
- Maximum nr. of channels: 16
- Main application: Breast
- Coil type: Dedicated

NOTES:

- Dedicated Breast accessory cart included.
- Compatible with dS Breast 16ch Biopsy Kit (NMRB537).
- Can be combined with a FlexTrak trolley (FMR0273, FMR0274) turning the system into a dedicated breast solution.
- Highly recommended to quote SmartExam Breast (NMRB052) with this coil for robust and consistent image quality.
- In case interventional planning SW is requested, DynaCAD v2.1.8 is required. This SW is already part of newly purchased DynaCAD's. Current DynaCAD users can upgrade their SW to this level.

**	dS Breast 16ch Biopsy Kit 1.5T	1
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Breast biopsy kit allowing the physician to practice a breast biopsy procedure on a phantom. The breast biopsy kit contains a full array of sterile disposables:

- 1 Breast Biopsy Practice Phantom
- 4 Lateral Grid insert
- 4 Medial Grid insert
- 1 Coax Needle
- 1 Coax Needle High Field
- 1 Semi-Automatic Biopsy gun
- 1 Fully Automatic Biopsy gun

- 1 FlexiLoc Needle
- 1 ClipLoc Set
- 1 Localizer Needle
- 3 Needle Blocks (12G)
- 3 Needle Blocks (18G)
- 3 Needle Block Holder

NOTE: Compatible ONLY with the 1.5T dS Breast Adaptive 16ch coil.

3	**	Ferroguard Wall-Mounted Assure	1
		Ferroguard Wall-mounted Entryway System Assure - In or Out Swing Door (includes 2 x Assure Wall-mounted Ferroguard detector poles; 1 x Power Supply Unit, 110-240VAC; Suitable for installation with in or outward opening MRI-room doorway; Includes CEU training, customer training and support)	
4		Turnkey Operation	1
		Turnkey Operation with Dome (Wall Expansion) .	
5		Turnkey Operation	1
		ADD HALO II FERROMAGNETIC DETECTOR	

Warranty Terms: Part numbers beginning with two (2) asterisks (**) are covered by a Per Contract. All other part numbers are third (3rd) party items.

Special Notations: Contingencies must be removed 120 days before scheduled shipment to assure delivery on specified date. Any rigging costs are the responsibility of the Purchaser.

Additional Terms:

Line #	Part #	Description	Qty	Each	Price
1	**NNAK052	AE Clinical Education OnSite 2 hours Ambient Experience: Prior to the Initial Handover, a minimum of (1) student and up to (4) students must complete the Ambient Experience online module on the Philips Learning Center. In conjunction with the Onsite Initial Handover the Philips Education Specialists will provide one (1) hour of Ambient Experience Education for up to four (4) students, selected by customer, including technologists from night/weekend shifts if necessary. Note: Philips personnel are not responsible for actual patient contact or operation of equipment during education sessions except to demonstrate proper equipment operation. Education expires one (1) year from equipment installation date (or purchase date if sold separately).	1		
2	**NAEA156	Amb Lighting & contr. syst MR Ambient Experience provides a unique approach to the MR clinical environment. Insights into how people feel, work and interact with each other and with technology are reflected in a purposefully designed environment that combines design strategies and enabling technologies to make patients less anxious, staff more comfortable and hospitals nicer places to be. The solution begins with site-specific recommendations to optimize the clinical area in terms of workflow and storage, including opportunities to minimize clutter for a more soothing environment. These recommendations are incorporated into the equipment Site Plans. A proprietary Control System integrates, dynamic lighting, audio elements and (optional) video projection to provide both positive distractions for the patient and an opportunity to personalize an otherwise intimidating environment. The Ambient Experience for MR solution includes: Design recommendations to minimize clutter and improve workflow incorporated in Site Plans Oversight by Philips Project Manager Coordinate communication, resources and implementation logistics, interface with construction contractor and/or architect Control System hardware and cabling Outlet/jack for connection to MR audio system Patient-selectable theme-controlled color "wall-washing" LED light system One touch screen with desk mount and wall mount fixtures Ambient Experience functionality such as volume and light intensity control as well as theme or color selection is accessed with a touch screen interface. 10 selectable audio, light and (optional) video themes and a palette of selectable colors for LED-created wall wash A breath-hold animation may be initiated from the touch screen, to help familiarize patients with the process of lying still and holding their breath. Instructions for Use IMPORTANT: Many of the Ambient Experience architectural requirements are interdependent with the RF shield in the examination room. The selected RF cage vendor must be certified for installation of AE suites. Note: the lighting component provides decorative lighting only. It is not intended as, nor replaces' functional lighting.	1	\$91,760.00	\$91,760.00
3	**NAEA148	Patient in-bore solution	1	\$43,400.00	\$43,400.00

The patient in-bore solution is designed to help patients relax and hold still during the MRI examination. Head-first patients get an immersive viewing experience when they are moving into the scanner (patients' highest anxiety moment) and during the examination. Engaging visuals are displayed on the back wall and can be seen via a mirror on the head coil, while patients can listen to music or sound through the Headphone. The patient in-bore solution is delivered with a second touchscreen.

Notes:

The patient in-bore solution is an optional addition to the existing Ambient Experience for MR portfolio and it addresses a specific need: to help patients relax and hold still during the actual examination. It is not available as a standalone option.

Technical feasibility of the patient in-bore solution is to be confirmed by Ambient Experience representative as we need to double check magnetic field level on the back wall (max 10mT).

Available for Philips Ingenia (1.5T & 3T) and Achieva (1.5T & 3T)

Available in EMEA and NAM

4	**NAEA108	Ingenia	1		
5	**989801238018	AMB Standard Design Service - MR	1	\$23,845.20	\$23,845.20

The Ambient Experience solution begins with recommendations to optimize the clinical area in terms of workflow and storage, including opportunities to minimize clutter for a more soothing environment. These recommendations are incorporated into the standard equipment Site Plans.

The Ambient Experience Design Consultation includes room layout, design, and finish recommendations.

Standard Design does not include on site design services.

Customer Responsibilities Include:

- Provide detailed floor plans and sections of the specified areas (in CAD and PDF format).
- Provide access to hospital resources to discuss the specific workflow of the specified areas.
- Provide access to the identified space during normal business hours for the implementation of the Ambient Experience technology elements.
- All construction, electrical and infrastructure required by the Ambient Experience Solution and implementation. Such as (but not limited to): curved walls, electrical and low voltage cabling, conduit and trays for AE cabling, expanded control room glass, millwork for storage and work desks, mounting support brackets for projectors, and all necessary task or work lighting.
- Provide a single point of contact to work with in planning and implementing the services described.
- Work with Philips to accomplish their task, in an agreed upon timeframe, in order to facilitate the project.
- Any and all expenses related to required Union or Contracted Labor for construction or implementation of the Ambient Experience technology and/or design elements specified for this project.
- Provide a Programming document with accurate and complete information of all functional requirements and expectations for the project. This information includes: objectives, constraints, special equipment needs, adjacent space relationships and other site requirements.

- Identify architect of record for project. The Philips Ambient Experience Team and Customer architectural team will collaborate closely on this project.
- The architect of record will be responsible for all final architectural and construction drawings and validation that these drawings meet all applicable regulations and code requirements.
- Participation by Customer, and their architects and engineers, in design presentations.
- All construction, electrical and infrastructure elements recommended by the Ambient Experience Solution and implementation, such as (but not limited to): curved walls, electrical and low voltage cabling, conduit and trays for AE cabling, expanded control room glass, millwork for storage and work desks, mounting support brackets for projectors, any construction or infrastructure required to meet all applicable regulations and code requirements.