PHILIPS

Computed tomography

Philips IQon Elite **Spectral** CT

Product specifications

Contents

1 Introduction

The IQon Elite Spectral CT is the world's first and only comprehensive CT diagnostic spectral solution for every patient, delivering valuable clinical insights such as improved tissue characterization and visualization for confident disease management. Fully integrated with your current workflow, this proprietary approach to CT delivers extraordinary diagnostic quality, with spectral results available as part of your routine CT scan.

Features	Specifications
Generator power	120 kW
Slices	Up to 256
Coverage	40 mm
Rotation speed	0.27 sec
Maximum scannable range	2,100 mm
Bore size	700 mm
Conventional reconstruction speed	iDose[4]: majority of reference protocols under 1 minute IMR: majority of reference protocols under 3 minutes
Spectral reconstruction speed*	3–5 minutes for the majority of cases, enabled by HyperSight Elite Spectral Reconstructor
Spectral temporal resolution	Simultaneous in the same time and space

* Spectral reconstruction is incremental to conventional reconstruction.

2 User Interface

iPatient

Envision personalized, patient-centric imaging with you in control of important advances in dose management and workflow, designed to make every day more productive. The Philips iPatient software helps you do all of this, and more.

2.1 iPatient key benefits

- Plan the results, not the acquisition
- Up to 24%* faster time to results; up to 66%* fewer clicks
- Facilitates optimal** management of image quality and radiation dose with patient-specific methods
- Easy and efficient communication between the CT system and the injector in order to facilitate delivering appropriate contrast dose and consistent image quality with SyncRight
- Optimizes collimation, pitch, and rotation time automatically
- Automates routine tasks
- Increases your ability to do complex and advanced procedures
- Enables advanced capabilities such as IMR and future technologies

2.2 ExamCards

ExamCards are the evolution of the scanning protocol. With ExamCards, the results are planned, not the acquisition; this reduces decision points and clicks, saves time, and is a means to share protocols among colleagues to allow for scan-to-scan consistency. ExamCards can include axials, coronals, sagittals, MPRs, MIPs, spectral, iDose[4], and IMR, all of which will be automatically reconstructed and can be sent to where they will be read with no additional work required by the operator.

2.3 ScanRuler

An interactive timeline of the study that provides the operator a quick overview of important events such as Surview, acquisition, bolus tracking, AutoVoice, and injection.

* In a study done using multiphasic liver CT exams, the iPatient software platform reduced time-to-results by 24% and clicks per exam by 66%. Impact of workflow tools in reducing total exam and user interaction time – four-phase liver computed tomography exams. Nicholas Ardley, Southern Health; Kevin Buchan, Philips Healthcare; Ekta Dharaiya, Philips Healthcare.

** Optimal refers to the use of strategies and techniques that facilitate the management and control of both image quality and dose.

3 Spectral applications on Intellispace Portal

A suite of advanced visualization applications for the Philips IQon Elite Spectral CT that delivers advanced spectral and clinical application tools to meet the unique needs of the Philips Spectral CT community. The spectral suite of applications is offered as part of the IntelliSpace Portal. The IntelliSpace Portal is a single, comprehensive platform, spanning clinical domains and modalities, with the power to visualize, diagnose, and communicate with one consistent and efficient, automated, and guided workflow.

3.1 Spectral CT Viewer

This viewer is designed to enable spectral quantification through proprietary spectral tools, including the exclusive Spectral Magic Glass. By offering unique capabilities across clinical areas, spectral applications provide additional anatomical and functional information to enhance diagnostic confidence.

Key benefits

- Enterprise-wide spectral viewing and analysis, offering on-demand spectral results virtually anywhere in the enterprise
- Spectrally enhance a conventional image by overlaying an iodine map
- Visualize virtual non-contrast images
- View images at different energy levels (40-200 keV)
- Easily switch among various spectral results through a viewport control
- Manage presets to create user- and site-specific presets
- Characterize lesions using scatter plots
- Characterize tissue using attenuation curves
- Compare multiple spectral results simultaneously for a Region of Interest by using the Spectral Magic Glass feature for spectral analysis on conventional images

keV slider

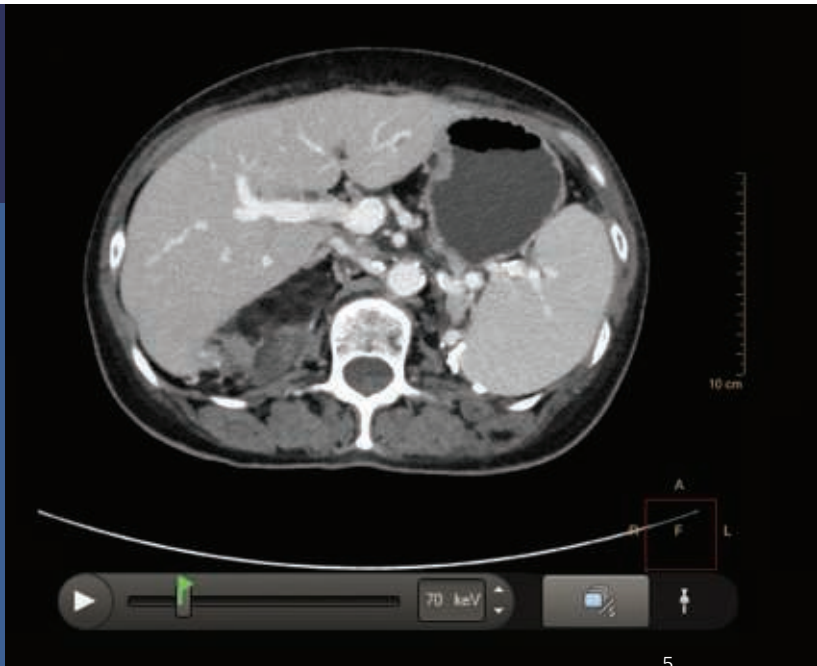
- Easily navigate the different energy levels
- Save selected energies for later reference
- Toggle the energies at predefined speed
- Available for all applications

Spectral results — anytime, virtually anywhere

The spectral suite of applications on the IntelliSpace Portal delivers unique spectral-enhanced applications and features including:

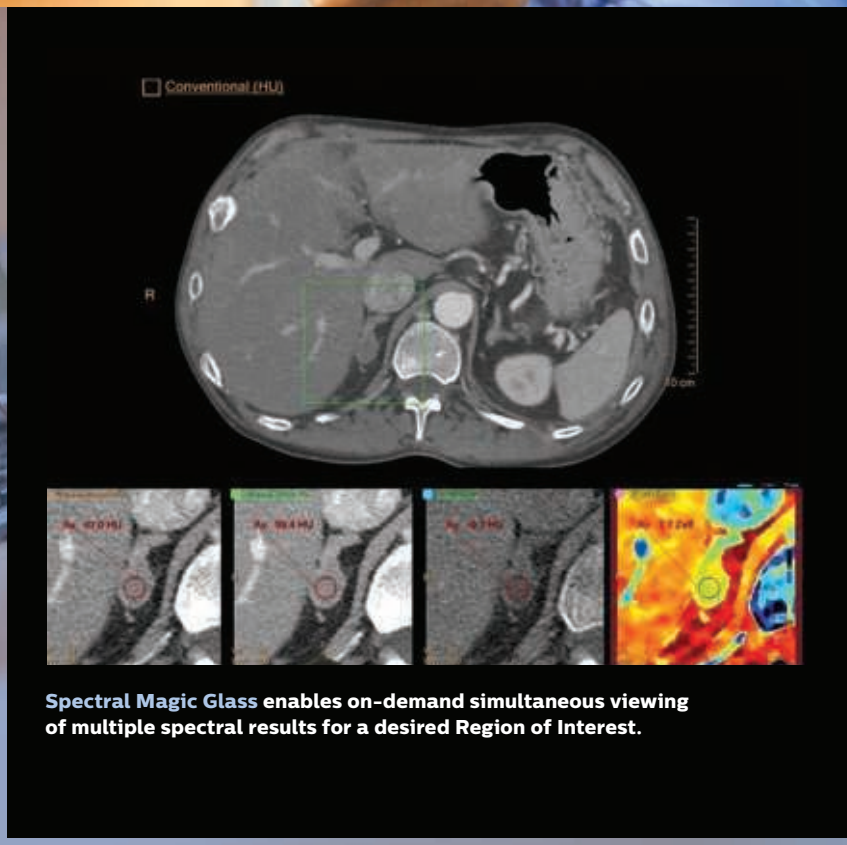
- Spectral-enhanced Comprehensive Cardiac Analysis (sCCA)
- Spectral Advanced Vessel Analysis (sAVA)
- Spectral-enhanced Multi-Modality Tumor Tracking (sMMTT)
- Spectral CT Viewer (sCTV)

In addition, the spectral results from the IQon Spectral CT can be used in many more applications on the IntelliSpace Portal, including Liver Analysis, PE/PAA, TAVI, and Brain Perfusion.



Spectral Magic Glass

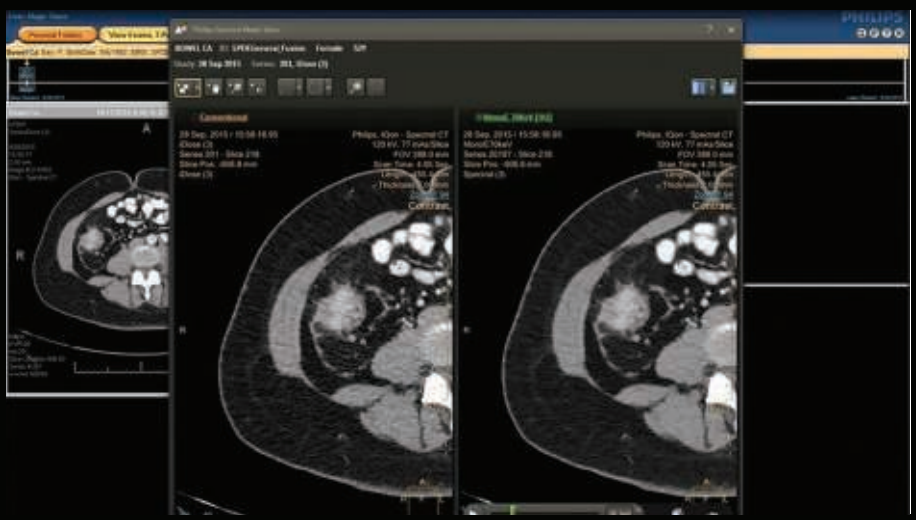
- Quick comparison of up to five different spectral results with one click
- User-defined viewing set of Spectral Magic Glass datatypes



Spectral Magic Glass enables on-demand simultaneous viewing of multiple spectral results for a desired Region of Interest.

Spectral Magic Glass on PACS app

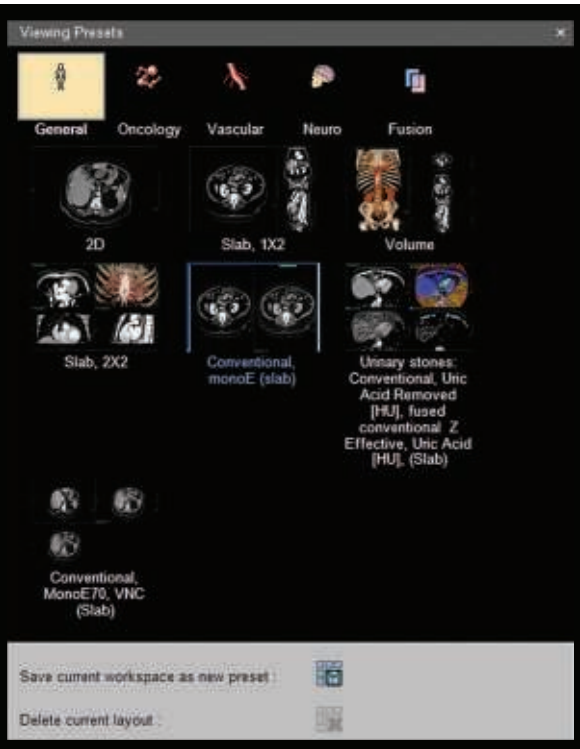
- Magic Glass capabilities accessible virtually anywhere in organization, including on your PACS



Spectral Magic Glass on PACS app offers enterprise-wide spectral viewing and analysis.

• Viewing presets

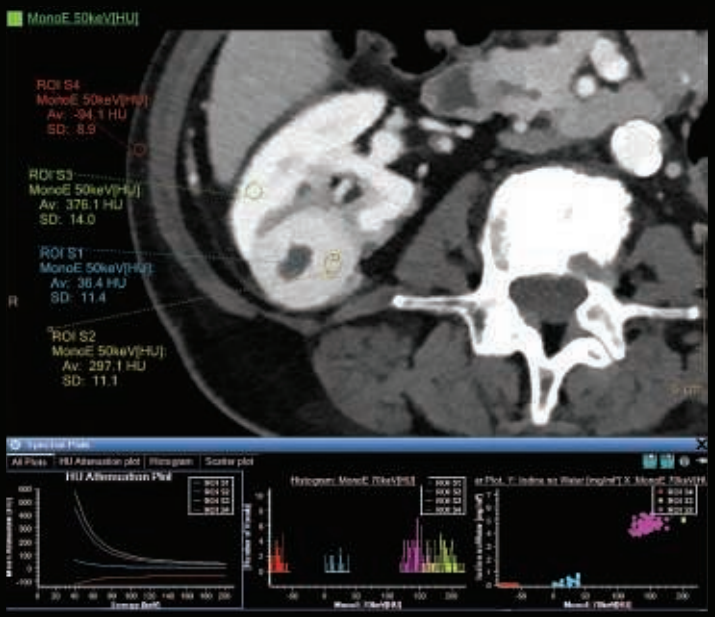
- Factory-defined viewing presets
- User-defined viewing presets to achieve personalized spectral workflow



Utilize viewing presets modes or create your own for quicker and more efficient throughput.

Spectral plots

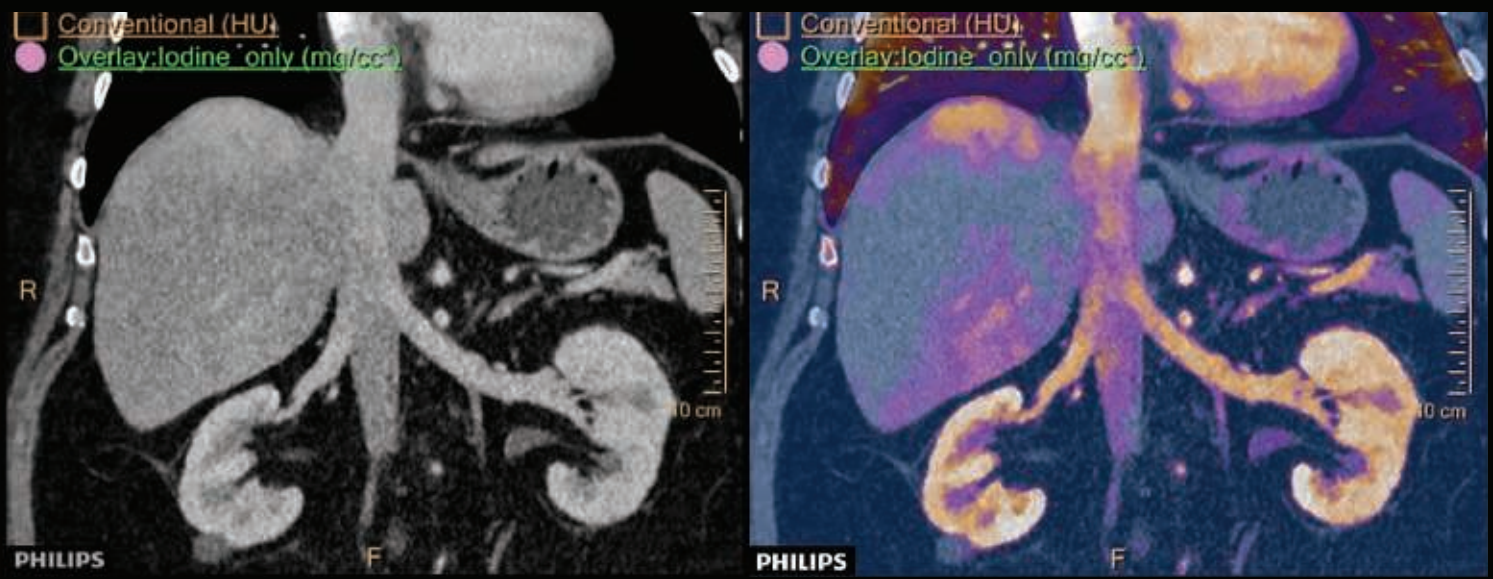
- Use the various types of spectral plots to enhance the spectral analysis
- Use the attenuation curves to differentiate different types of lesions



Spectral plots allow you to differentiate various types of lesions using attenuation curves.

Fusion

- Advanced fusion capabilities to enable viewing spectral results such as iodine map on top of the conventional data



Fusion images enable improved visualization of structures using spectral results.

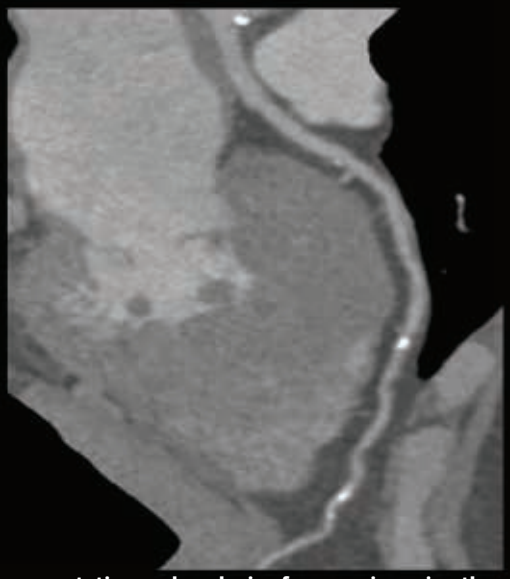
Optional

3.2 Spectral-enhanced Comprehensive Cardiac Analysis

The spectral cardiac analysis provides the ability to run on-demand cardiac segmentation on different energy levels, compare vessel curves with various spectral data types, and enhance the visual assessment of coronary vessel patency.

Highlights

- Automatic chamber and coronary segmentation using monoenergetic images
- Beam hardening reduction for improved visualization of perfusion deficits and calcified plaque visualization



Automated segmentation and analysis of coronaries using the Spectral-enhanced Comprehensive Cardiac Analysis application on spectral monoenergetic data.

Optional

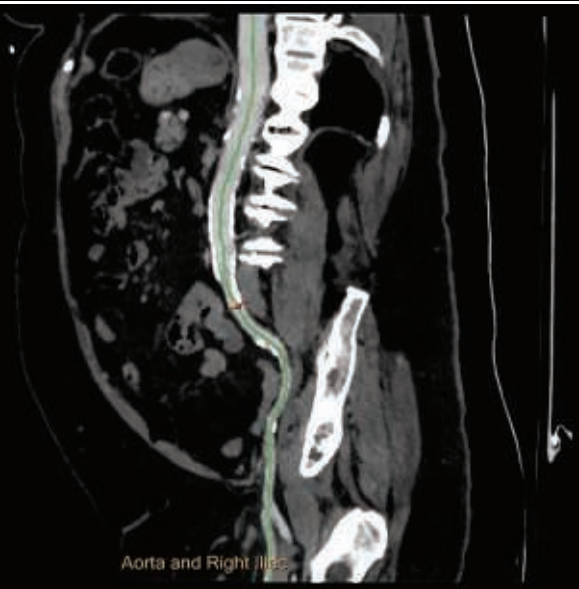
3.3 Spectral Advanced Vessel Analysis

Comprehensive vascular analysis

Offers a set of tools for general vascular analysis. It allows the user to remove bone, extract and edit vessel wall and lumen based on spectral data, perform lesion analysis based on spectral data, and compare the extracted vessels using various spectral results.

Highlights

- Bone removal on different energy levels
- Reduced calcified plaque artifacts
- Different energy results comparison



Automated segmentation and analysis using the Spectral Advanced Vessel Analysis application on spectral data.

Optional

3.4 Spectral-enhanced Multi-Modality Tumor Tracking

Streamlined workflow for follow-up and analysis of oncology patients

Provides tools to help clinicians monitor disease progression or assessment of therapy response.

Highlights

- Tumor viewing with different spectral data types (VNC, iodine map)
- Images at different energy levels (40-200 keV)
- Iodine uptake measurements

Automated segmentation of tumor with quantification of iodine uptake, using the Spectral-enhanced Multi-Modality Tumor Tracking application on spectral data.

4 DoseWise

Philips DoseWise is a holistic approach to dose management that is active in every level of product design. It encompasses a set of techniques, programs and practices based on the ALARA (As Low As Reasonably Achievable) principle and supports outstanding image quality at low dose.

4.1 DoseRight Index

DoseRight Index (DRI) is a single number used to specify the image quality required for the diagnostic task at hand. DRI includes organ-specific DRI for the liver and the head/neck to provide appropriate dose and image quality within a single acquisition. 10 weight-based protocols can be generated for ExamCards, including 7 child and 3 adult reference sizes.

4.2 CT Dose Check

Supports an operator notification in each ExamCard that will be shown if an acquisition is planned that exceeds a specified $CTDI_{vol}$ or DLP. In addition, an alert is available such that, if an acquisition is planned and the total exam will exceed a specified $CTDI_{vol}$ or DLP, the operator will be required to enter his or her name and (if configured) a password to proceed, or the operator can adjust the scan parameters. Compliant with NEMA XR-25 and XR-29.

4.3 DICOM structured reporting/IHE REM profile

DICOM radiation dose structured report that can be transferred to external systems such as HIS/RIS, PACS, or dose registries.

4.4 DoseRight automatic current selection

Personalizes dose for each patient by automatically suggesting tube current settings according to the estimated patient diameter in the scan region.

4.5 DoseRight Z-DOM (longitudinal dose modulation)

Longitudinal dose modulation (Z-DOM) aids in adapting dose to an individual patient's size and shape. In particular, Z-DOM adjusts the tube current-time product (mAs) in the craniocaudal or caudocranial (z-axis) direction based on the Surview by comparing the actual patient's attenuation at each longitudinal location to a reference.

4.6 3D-DOM

3D-DOM combines angular and longitudinal information to modulate dose in three dimensions.

4.7 Dedicated pediatric protocols

Age- and weight-based child protocols provide high-quality images at low doses tailored to the patient's size and the clinical indication.

4.8 Locking protocols

Unauthorized protocol modifications may be prevented through password-protected access.

4.9 Dose display and reports

Philips CT scanners include intuitive reporting and recording of estimated dose indices and dose efficiency. Dose estimates are displayed on the operator's console for all scan protocols prior to and throughout the examination. Volume computed tomography dose index ($CTDI_{vol}$) and dose-length product (DLP) are automatically updated as the operator plans the scan. Also, a dose report may be included as a DICOM dose structured report and/or DICOM secondary capture with the reconstructed data set.

4.10 Dose performance data

$CTDI_{vol}$	Measurement
Head	17.2 mGy/100 mAs
Body	9.0 mGy/100 mAs

Measured on head and body CTDI phantoms (IEC 60601-2-44 ed.3) at 120 kVp.

4.11 Eclipse DoseRight collimator

Manages patient exposure during helical scanning.

4.12 IntelliBeam filter

Beam hardness is controlled with the IntelliBeam filter. The filter selection is configured to be used in combination with the X-ray tube's intrinsic filtration to balance low contrast resolution and dose.

4.13 SmartShape wedge

Filter beam intensity according to the patient's size. The wedge provides less medial filtering – where the patient thickness is greatest – than laterally, thereby facilitating a uniform dose and noise distribution as the tube rotates.

4.14 Spectral capabilities

Feature	Specification
Spectral temporal offset	0 (simultaneous in time and space)
MonoEnergetic range	40 keV to 200 keV
Noise – monoenergetic images	70-200 keV – less than 0.27% 60 keV – less than 0.35% 50 keV – less than 0.40% 40 keV – less than 0.45% 120 kV, 250 mAs, 10 mm slice thickness*
FOV with spectral results	50 cm
Dose modulation tools available with Spectral	DoseRight Z-DOM (longitudinal dose modulation) 3D-DOM (combines angular and longitudinal information) ECG Dose Modulation
Spectral results creation*	Available prospectively and retrospectively
Fastest rotation speed available for spectral cardiac acquisitions	0.27 sec
Results available with 120 kVp and 140 kVp acquisitions	Both spectral and conventional results

* Projection space data used to create spectral results (facilitated by spectral temporal offset of 0).

4.15 Spectral Results

Spectral Result	Description
MonoE	Shows attenuation as if a single monochromatic energy (keV) was used to scan. The range is between 40-200 keV. **Low MonoE clinical benefits include:** Improve lesion detection and characterization, improve enhancement in sub-optimal cases, improve gray and white matter differentiation, assist clinician in hemorrhage detection, and assist clinician in the assessment of lung tumors and lymph nodes. **High MonoE clinical benefits include:** Reduce beam hardening, reduce calcium blooming, and reduce metal artifacts in CT images to improve image quality.
Virtual non contrast	Shows image as if the iodine component is removed but data shows attenuation as if no iodine present. **Clinical benefits include:** Reduce a non-contrast phase in a multi-phase exam, and reduce a non-contrast phase in a coronary CTA exam.
Iodine no Water	An image in which the voxel values represent the iodine concentration of the displayed tissue in mg/ml. Non-enhanced soft tissues are set to approximately 0 mg/ml. **Clinical benefits include:** Assist clinician in the assessment of the hemodynamic significance of PE, assess therapy response early, assess myocardial perfusion, and improve lesion detection and characterization.
Iodine density	An image in which the voxels values represent the iodine concentration of the displayed tissue in mg/ml. Voxels without iodine are equalized to 0 mg/ml (visualized as black). **Clinical benefits include:** Assist clinician in the assessment of the hemodynamic significance of PE, assess therapy response early, assess myocardial perfusion, improve lesion detection and characterization.
Effective Z	Shows effective atomic number value at every pixel, which is derived from the photo and scatter values computed from the low- and high-energy signals. **Clinical benefits include:** Detect and characterize tumors, assist clinician in the assessment of the hemodynamic significance of PE, and assist the clinician in the characterization of kidney stones.
Uric acid	Generated by computing and then identifying pixels where uric acid is present; HU values are the same as MonoE 75keV for uric-acid pixels. **Clinical benefits include:** aiding clinician in identification of gout.
Contrast-enhanced structures	In this result all the soft tissue voxels remain identical to MonoE 70 keV. Bone and calcified structure voxels are equalized to HU= -1024 (visualized as black). **Clinical benefits include:** Improve lesion detection and characterization, assist the clinician in the assessment of the hemodynamic significance of PE, and assess therapy response early, assess myocardial perfusion.
Iodine removed	The image is generated to focus on the non-enhanced structures while removing the enhanced structures. Depending on varoius factors, some of the enhanced structures can still appear in the image.
Calcium suppressed	In this image, voxels containing calcium are suppressed and replaced by virtual HU values as similar as possible to the expected HU without calcium contribution to the attenuation. Calcium Suppressed images provide additional information to the clinician that may help in better assessment of intervertebral disc herniation, and the visualization of bone marrow involvement when bone fractures are present.
Electron density	A dedicated algorithm that uses spectral data to estimate the electron density (ED) of each voxel. The ED values presented in the image are relative to the electron density of water (3.34x1029 electrons x m-3) in units of percent.

5 Gantry

5.1 AirGlide gantry

Feature	Specification
Aperture	700 mm
Focus-isocenter distance	570 mm
Focus-detector distance	1040 mm
Rotation times	0.27, 0.3, 0.33, 0.375, 0.4, 0.5, 0.75, 1, 1.5 seconds for full 360° scans Scan time for partial angle 240° scans: 0.18, 0.2 seconds
Intercom system	Two-way connection between the gantry and console area
Breathing lights	Visual communication to facilitate patient compliance

5.2 AutoVoice

A standard set of commands for patient communication before, during, and after scanning. Customized messages can also be created.

5.3 Operator's console control panel

- Table in/out/up/down
- Emergency stop
- X-ray indicator
- Start button
- Pause button

5.4 Gantry control panels

- Multi-directional control for fast movement
- Fine movement in/out control
- Visual countdown
- Zero table location
- Lasers

Audio notification 10 seconds before X-ray On so that operator and staff can exit room before X-ray On.

5.5 Patient table

Feature	Long table	Bariatric table
Maximum scannable range	2,100 mm	1,750 mm
Pitch	0.07 – 1.5	0.07 – 1.5
Z-position accuracy	+/- 0.25 mm	+/- 0.25 mm
Longitudinal speed	0.5 mm/s – 185 mm/s	0.5 mm/s – 185 mm/s
Lowest table height	645 mm	645 mm
Maximum load capacity	450 lbs (204 kg)	650 lbs (295 kg)

6 Accessories

6.1 Standard accessories

Head rest

Phantom kit

Phantom kit holder

IV pole

Head holder cushions and pads

Standard head holder

Table extension

Table pad

Load and unload foot pedals

6.2 Optional accessories

Flat head holder

Coronal head holder

Radiology flat top kit

Infant cradle

Therapy table top (available only with bariatric table)

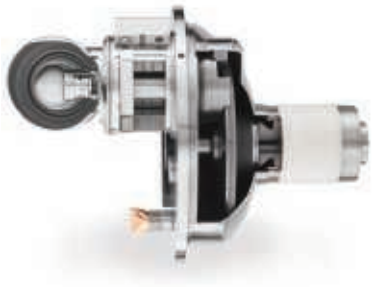
7 Imaging Chain

7.1 Generator

Feature	Specification
Power rating	120 kW
kVp setting	80, 100, 120, 140
mA range (step size)	10-1,000 (1 mA)

7.2 X-ray tube

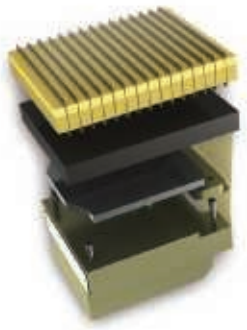
Feature	Specification
Focal spot sizes, quoted to IEC 60336 Ed.4	Small: 0.6 x 0.7 Large: 1.1 x 1.2
Anode cooling	Direct cooling; spiral-groove bearing
Target angle	8°
Maximum helical exposure time	110 s
Smart focal spot	x- and z-deflection



The segmented anode and direct liquid cooling of the iMRC X-ray tube allow high-throughput scanning.

7.3 NanoPanel Prism detector

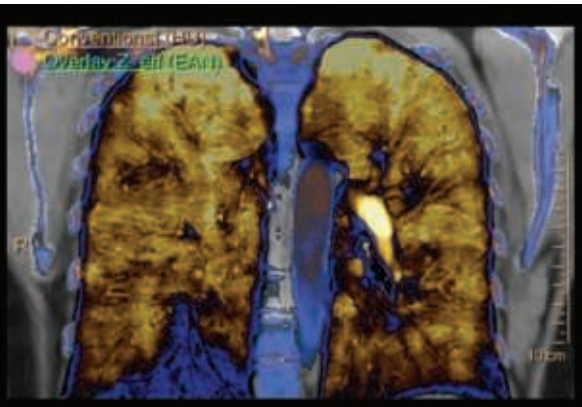
Feature	Specification
Coverage	40 mm
Material	Solid-state yttrium-based scintillator; GOS
Dynamic range	1,000,000:1
Slip ring	Optical – 5.3 Gbps transfer rate
Data sampling rate	Up to 4,800 views/revolution/element
Collimations	64 x 0.625, 32 x 0.625, 16 x 0.625, 8 x 0.625, 4 x 0.625, 2 x 0.625
Slice thickness (helical mode)	0.67 – 10
Slice thickness (axial mode)	0.625 – 10
Scan angles	240°, 360°, 420°
Scan field of view	500 mm



NanoPanel Prism allows for 25% higher light output and 30% lower cross-talk than previous detector.

Top scintillator thickness is optimized for energy separation and image noise, while the bottom scintillator absorbs 99% of the high-energy spectrum.

8 Image Quality



Chronic PE with right lung perfusion deficit and effective Z overlay.

120 kVp acquisition with 70-second injection delay. Left is conventional image. Right is monoenergetic image at 50 keV.

8.1 Spatial resolution

Spatial resolution	Cut-off (+/- 2 lp/cm)
High mode (lp/cm)	16
Standard mode (lp/cm)	13

8.2 Low-contrast resolution

Feature	Specification
Low-contrast resolution*	4 mm @ 0.3% @ 25 mGy $CTDI_{vol}$
Low-contrast resolution with IMR**	2 mm @ 0.3% @ 10.4 mGy $CTDI_{vol}$

* 20 cm Catphan phantom; 10 mm slice thickness
** 20 cm Catphan phantom; 7 mm slice thickness body CTDI phantom (IEC 60601-2-44, Ed. 3); at 120 kVp.

8.3 Other

Feature	Specification
Absorption range	-1,024 to +3,071 Hounsfield units
Noise	0.27% at 120 kV, 250 mAs, 10 mm slice thickness

9 Reconstruction

9.1 Reconstruction speed

Feature	Specification
Conventional reconstruction speed	iDose[4]: 40 IPS; majority of reference protocols under 1 minute IMR: majority of reference protocols under 3 minutes
Spectral reconstruction speed	3-5 minutes for the majority of cases, enabled by HyperSight Elite Spectral Reconstructor
HyperSight Elite Spectral Reconstructor	Designed for high throughput sites, enables up to 200 patients in a 16-hour shift. Utilizes additional hardware for parallel processing of images

9.2 IMR

Iterative Model Reconstruction (IMR) sets a new direction in CT image quality with virtually noise-free images and industry-leading low-contrast resolution. Moreover, for the first time physicians are also able to simultaneously combine image quality improvements with significantly lower doses.* This improvement is a breakthrough made possible through Philips first iterative reconstruction built on knowledge-based models.

9.3 iDose⁴ Premium Package

iDose⁴ Premium Package includes two leading technologies that can improve image quality – iDose⁴ and metal artifact reduction for large orthopedic implants (O-MAR). iDose⁴ improves image quality** through artifact prevention and increased spatial resolution at low dose. O-MAR (for conventional images only) reduces artifacts caused by large orthopedic implants. Together they produce high image quality with reduced artifacts.

9.4 HyperSight Elite Spectral Reconstructor

HyperSight Elite Spectral Reconstructor is specifically designed to address the reconstruction, performance and throughput needs of high throughput and emergency care settings. IQon Elite Spectral CT with the HyperSight Elite Spectral Reconstructor enables routine spectral imaging of up to 200 patients in a 16-hour shift. The accelerated throughput is enabled by utilization of additional hardware for parallel processing of images.

9.5 Cone Beam Reconstruction Algorithm – COBRA

Philips patented Cone Beam Reconstruction Algorithm (COBRA) enables true three-dimensional data acquisition and reconstruction in both axial and helical spiral scanning.

9.6 ClearRay reconstruction

A revolutionary solution pre-computes and stores beam hardening and scatter corrections in a database later referenced to create a correction that is personalized to each individual patient. As a fully three-dimensional technique, contrast scale stability is preserved across different patient sizes, image uniformity is improved, and organ boundaries are better visualized.

9.7 Adaptive multicycle reconstruction

Image data can be prospectively gated or retrospectively tagged. Automatically delivers the best temporal resolution possible for the current scan (as low as 34 ms).

9.8 Reconstruction field of view

50 to 500 mm continuous

9.9 Image matrix

512 x 512 • 768 x 768* • 1024 x 1024*

*Available for conventional only

9.10 Off-line reconstruction

Off-line (batch) background image reconstruction of user-defined groups of raw data files with automatic image storage.

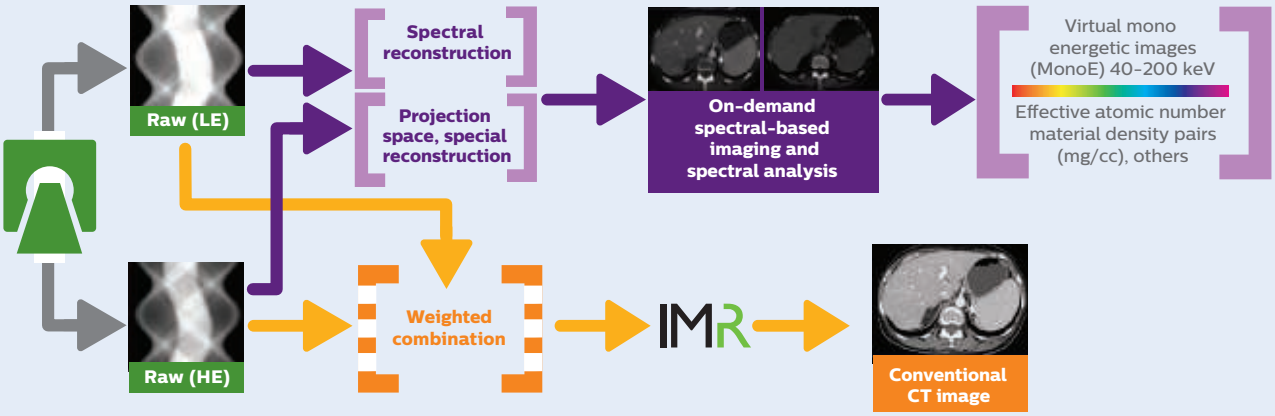
9.11 Preview images

Real-time 512^2 matrix image reconstruction and 5 mm x 5 mm contiguous slice display with helical acquisition.

* In clinical practice, the use of IMR may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. Lower image noise, improved spatial resolution, improved low-contrast detectability, and/or dose reduction, were tested using reference body protocols. All metrics were tested on phantoms. Dose reduction assessments were performed using 0.8 mm slices and tested on the MITA CT IQ Phantom (CCT183, The Phantom Laboratory), using human observers. Data on file.

** Improved image quality is defined by improvements in spatial resolution and/or noise reduction as measured in phantom studies.

IQon Elite Spectral CT reconstruction



IQon Elite Spectral CT reconstruction provides a single DICOM entity that contains sufficient information for retrospective analysis, known as the Spectral Base Image (SBI). The SBI contains spectral results with no need for additional reconstruction or post-processing. Spectral applications create various spectral results from the SBI.

10 Clinincal Enhancements

Optional

10.1 SyncRight

The Philips CT SyncRight option enables easy and efficient communication between the CT system and the injector in order to facilitate delivering appropriate contrast dose and consistent image quality.

Optional

10.2 CT Interventional

CT Interventional includes enhanced interventional capabilities to increase throughput and control of interventional procedures. With the option of either cart-mount or ceiling-mount solutions, the system provides clinical confidence and consistency with flexible displays (1:1, 3:1, or volumetric) and allows the user to adjust the viewing convention or scan parameters and to switch scan modes on the fly. Reference series display enhances intra-procedural needle guidance. Both the single and continuous interventional scan modes support iDose[4] and are DoseRight- and DRI-capable. The Philips interventional table control option enhances operational efficiency during CT-guided interventional procedures.

10.3 Bolus tracking

An automated injection planning technique to monitor actual contrast enhancement and initiate scanning at a predetermined level.

10.4 Spiral Auto Start (SAS)

Spiral Auto Start allows the injector to communicate with the scanner. This allows the technologist to monitor the contrast injection and to start the scan (with a predetermined delay).

10.5 Patient centering on surview

Traditionally, patients are centered using the gantry laser lights; with this feature it is possible to improve patient centering using the lateral surview with real-time feedback.

10.6 Clinical applications

- CT Reporting
- CT Viewer
- Spectral CT Viewer
- Cardiac Viewer
- Calcium Scoring
- Filming

10.7 RateResponsive CV toolkit

Enables cardiac imaging and includes an ECG monitor, Retrospective Tagging, Prospective Gating, Cardiac Viewer, Heartbeat-CS, and CT Reporting. Uses Philips exclusive Adaptive Multicycle Reconstruction algorithm to enhance temporal resolution – as low as 34 ms – and uses Philips patented Beat-to-Beat Algorithm to automatically find the best phase for cardiac imaging. Includes automatic arrhythmia detection and management.

10.8 Step & Shoot Complete

Step & Shoot Complete enables low-dose, prospectively ECG-triggered, axial thoracic imaging. This feature also allows gated, submillimeter, isotropic imaging of the entire thorax (up to 50 cm transaxial field of view), including the coronary arteries.

Step & Shoot Complete is well suited for patients with heart rates below 75 bpm. Arrhythmias are managed in real-time using proprietary, prospective-detection algorithms to pause acquisition during unstable heart rhythms.

10.9 Advanced Brain Perfusion

Philips Advanced Brain Perfusion package differentiates areas of change in blood volume and blood flow and presents this information in a summary map. The summary maps may help clinicians distinguish between still-viable and non-viable infarcted tissue.

Philips Advanced Brain Perfusion provides motion correction, noise reduction, and improved ease-of-use to maximize efficiency. The package generates quantitative color maps of cerebral blood flow (CBF), cerebral blood volume (CBV), mean transit time (MTT), and time-to-peak (TTP), in addition to the summary maps.

10.10 Jog Scan

Provides up to 80 mm of organ coverage for perfusion studies. An axial scan is taken in one location, the couch translates to another location within a few seconds, and another axial scan is taken. These multiple datasets are registered automatically to provide the extended coverage.

11 Networking and Storage

11.1 Networking

Supports 10/100/1000 Mbps (10/100/1000 BaseT) networks. For optimal performance, Philips recommends a minimum 100 Mbps network (1 Gbps preferred) and for the CT network to be segmented from the rest of the hospital network.

11.2 DICOM

DICOM 3.0-compliant image format. Lossless image compression/decompression is used during image storage/retrieval to/from all local storage areas. Images can be auto-stored to selected archive media.

Includes the following DICOM functionality:

- Service class user and profile (CT, MR, NM, Secondary Capture)
- DICOM Print
- DICOM Modality Worklist
- Query/Retrieve User and Provider
- Modality Performed Procedure Step User
- Storage Commitment User
- Removable Media

11.3 DICOM connectivity

Full implementation of the DICOM 3.0 communications protocol allows connectivity to DICOM 3.0-compliant scanners, workstations, and printers; supports IHE requirements for DICOM connectivity.

11.4 DICOM DVD/CD writer

Stores DICOM images and associated image viewing software on DVD/CD media. Images on these DVD/CDs can be viewed and manipulated on PCs meeting the minimum specifications. Suited for individual result storage and referring physician support.

11.5 Filming

This function allows the user to set up and store filming parameters. Pre-stored protocols can be set to include auto-filming. The operator can film immediately after each image, at the end of a series, or after the end of a study, and review images before printing. The operator can also automatically film the study at three different windows and incorporate “Combine Images” functionality to manage large datasets. Basic monochrome and color DICOM print capability are supported.

11.6 Local hard drive for image storage

The IQon Elite Spectral CT is equipped with a 4 TB hard drive to facilitate the local storage of spectral results.

12 Site Planning

12.1 Power requirements

380-480 VAC
50/60 Hz
225 kVA supply (175 kVA momentary)
Three-phase distribution source

12.2 Console Uninterrupted Power Supply (UPS)

Provides up to 30 minutes of backup power for host and reconstruction system

Optional

12.3 Isolation transformer

May be used in conjunction with a full-system UPS to provide voltage correction; or, may be used stand-alone when an isolated ground is not present or when a Wye supply is not available.

12.4 Environmental requirements

Temperature

Gantry room	18° to 24° C (64° to 75° F)
Control room	15° to 24° C (59° to 75° F)
Technical room	15° to 28° C (59° to 82° F)
Storage/Transport	-20° to +50°C (-4°F to +122°F)

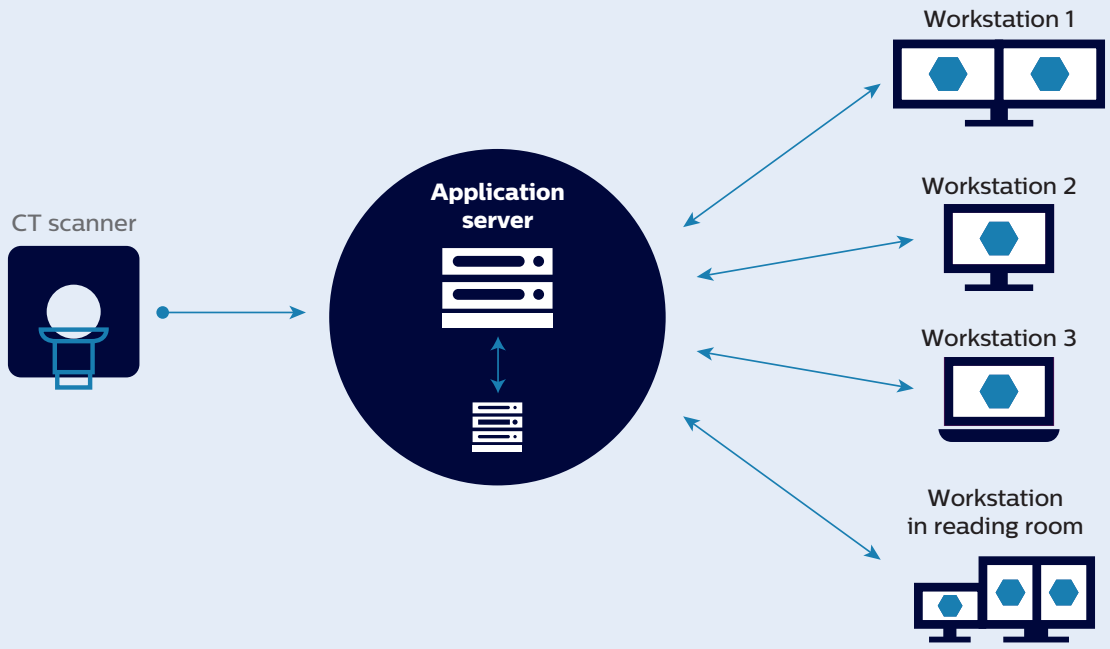
Humidity

Gantry/Control	35% to 70% non-condensing
Technical room	20-80% non-condensing
Storage/Transport	20% to 85% non-condensing

Heat dissipation

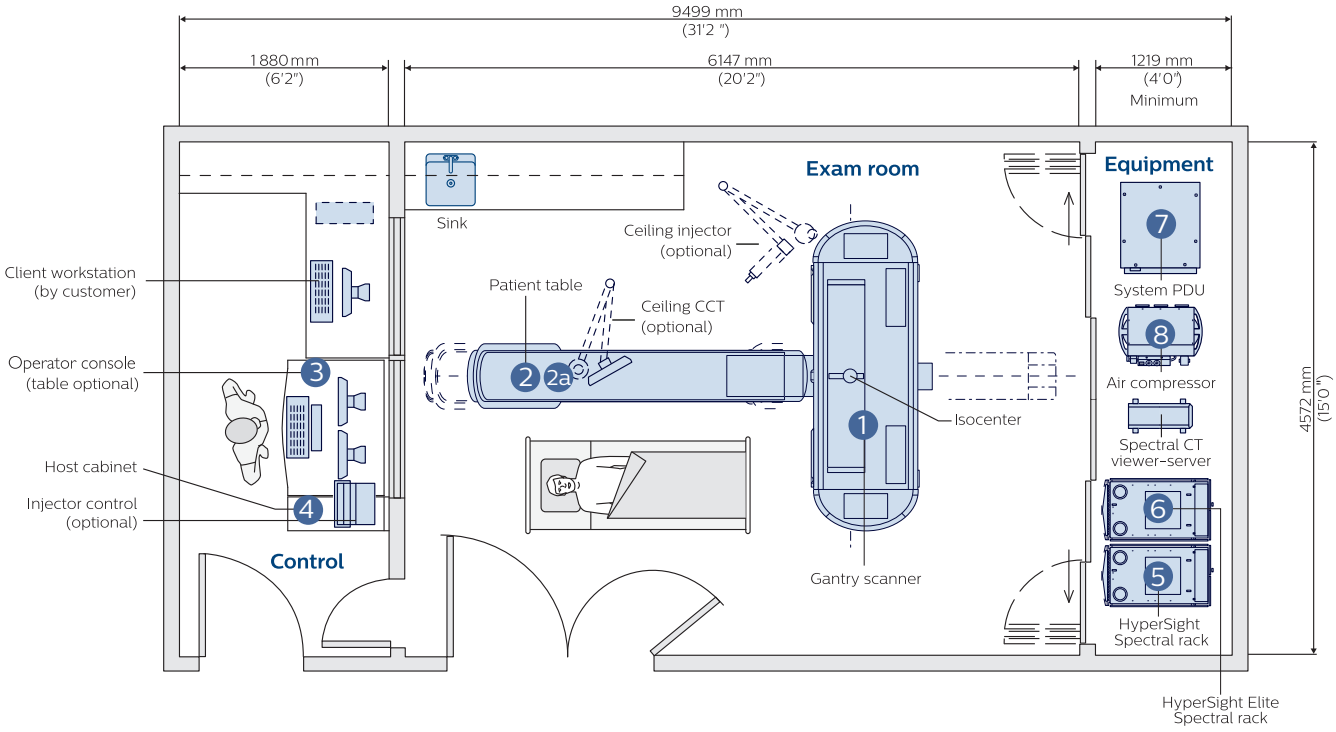
Gantry	32,888 BTU/hour
PDU	5,220 BTU/hour
Air compressor	5,093 BTU/hour
Host	2660 BTU/hour
HyperSight Spectral rack	13,073 BTU/hour
HyperSight Elite Spectral rack	13.073 BTU/hour

Example hospital setup



12.5 System requirements

This preferred room layout will accommodate a 2100 mm scannable range.



Preferred room layout:
43.4 sq. meters (467 sq. ft.)

Notes

Spectral CT server and client's own workstation can be remotely located. Server can be placed in an IT rack in the hospital's computer room.

Space provisions have been applied to this room layout for 2100 mm axial anatomical patient coverage.

Extended cable kit will allow for host rack to be located in equipment room. Verify availability of kit and floor space.

	Length	Width	Height	Weight
1 Gantry scanner	2,741.9 mm (107.9")	959.5 mm (37.8")	1,983.7 mm (78.1")	2,566 kg (5,656 lb)
2 Patient table	5,653 mm (222.5")	577 mm (22.7")	1069.4 mm (42.1")	456 kg (1,005 lb)
2a Installed bariatric couch	4,851 mm (191")	685 mm (27")	1,067 mm (42")	445 kg (981 lb)
3 Operator console (table optional)	1,200 mm (47.2")	905 mm (35.6")	1,164 mm (45.8")	88 kg (194 lb)
4 Host cabinet	330.9 mm (13")	895.6 mm (35.3")	759.4 mm (29.9")	84 kg (185.2 lb)
5 HyperSight Spectral rack	600 mm (23.6")	1110 mm (43.7")	2,026 mm (79.8")	365 kg (806 lb)
6 HyperSight Elite spectral rack	600 mm (23.6")	1110 mm (43.7")	2,026 mm (79.8")	365 kg (806 lb)
7 System PDU	560 mm (22")	845 mm (33.3")	1,233.4 mm (48.6")	531 kg (1,170 lb)
8 Air compressor	605.3 mm (23.83")	630 mm (24.8")	858.5 mm (33.8")	165 kg (363.8 lb)

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