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- This product is a CLASS 2 LASER PRODUCT.
- It includes optional items. Please confirm your system configurations to our local representative.
- 3D images are processed by a medical workstation.

FUJIFILM
Value from Innovation



LESS IS MORE

In today's healthcare environments, where advancements in technology demand increasingly diverse roles from healthcare professionals, the FCT iStream embodies the "Less is More" philosophy.

Utilizing Fujifilm's AI technology: REiLI, FCT iStream simplifies workflows and ensures more reliable and efficient examinations.

By achieving greater results with less effort, the FCT iStream enables healthcare professionals to focus on their most important responsibility - delivering exceptional patient care.



REiLI

REiLI, FUJIFILM's medical AI technology brand, enables support for physicians in the diagnosis and streamlining of the workflow for diagnostic imaging by combining the image processing technology we have cultivated with the most advanced AI technology to realize improved medical care.



Organ Recognition Technology

Responds during the setup and operation of the CT examinations

AutoPositioning

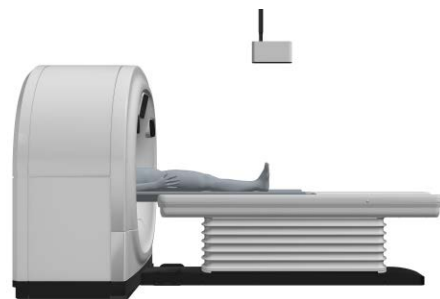
Sets up with just one button according to the scanning area

Conventional CT examinations^{*1} required operators to manually adjust the height of the patient table and the starting position based on the target area after positioning the patient on the table. As a result, there was variability in setup time and positioning depending on the operator's level.

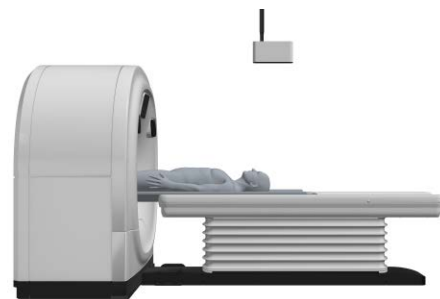
AutoPositioning^{*2,3,4} is a function utilizing deep learning that estimates the anatomical landmarks of the patient on the patient table in three dimensions from images captured by a ceiling-mounted 3D camera. The patient table automatically adjusts to the appropriate scanning height and position with a single button press. It supports a total of 14 different anatomical regions, including the head and chest.

Supports

14 anatomical regions



The case of chest scanning



The case of chest and abdomen scanning

AutoPose

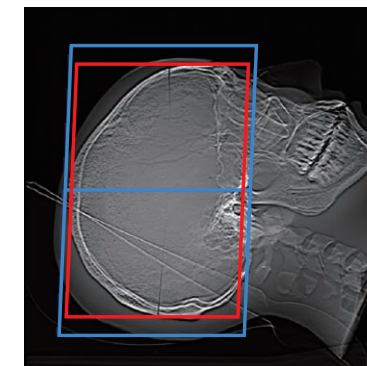
Automatically sets the scanning range from scanogram images



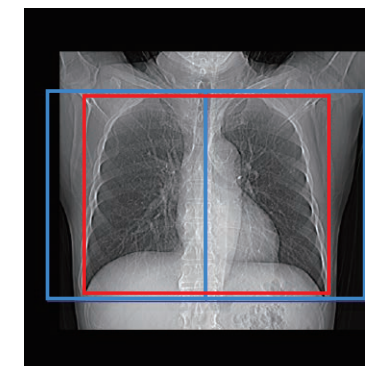
Conventional CT examinations^{*1} required operators to position the patient and take images called scanograms, on which operators would use a mouse to manually adjust the scanning range, field of view size, and tilt setting.

AutoPose, utilizes Deep Learning-based organ segmentation technology to automatically set the scanning range, field of view size, image tilt, and other parameters^{*5,6}. It supports a total of 14 anatomical regions, including the head and chest. Furthermore, when scanning the head, the iTilt function can be used to automatically create tilt images after scanning.

Red: Scan range Blue: Scan range + Margin



Head (OM Line)



Chest

FCT iStream

Scanogram

AutoPose

Scan

Reduces exam time

Conventional system: Supria 64 CT System

Scanogram

Setting the start position

Setting the end position

Setting the FOV size

Setting the center of FOV

Setting the image tilt

Scan

*1: The case of Supria 64 CT System

*2: Optional item

*3: AutoPositioning was developed by utilizing Deep Learning, one of the AI technology. The performance and accuracy of the system do not automatically change after use.

*4: Since AutoPositioning assists in moving the patient table for positioning, the operator needs to perform the final positioning and manually using a light localizer.

*5: AutoPose was developed by utilizing Deep Learning, one of the AI technology. The performance and accuracy of the system do not automatically change after use.

*6: The automatically set scan range must be checked, and the operator may adjust, if necessary.

Organ Recognition Technology

Responds during the setup and operation of the CT examinations

Efficient Operation Supports by Collaboration of Console and 3D Medical Workstation

Fujifilm's image processing technology that developed over the years, now has been installed in the operator's console, and the analysis function has been enhanced. Reconstructed images are simultaneously saved to the operator console and transferred to SYNAPSE 3D, which reduces the waiting time from scanning to starting analysis. For example, it can automatically recognize the spine, generate slice lines, and perform MPR reformat at any desired slice plane. Even when the CT system is actively scanning, this enables improved throughput for the analysis process.



When used by one person



When used by two persons



SYNAPSE 3D

3D image analysis system equipped with Fujifilm's AI technology



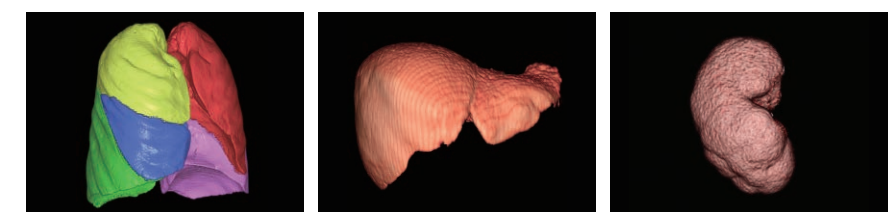
The 3D image analysis system: SYNAPSE 3D¹⁾, which extracts high-precision 3D images from CT and MRI images and performs analysis, has been further enhanced through Deep Learning by the medical IT technology brand: REiLI. By leveraging the vast amount of accumulated medical image data, the system now features enhanced automatic extraction functions for CT data. Leveraging image recognition technology, Fujifilm has achieved AI-era 3D analysis technology that supports team-based medical care.

Fujifilm's REiLI is leading the way to the forefront of team-based medical care.



Organs

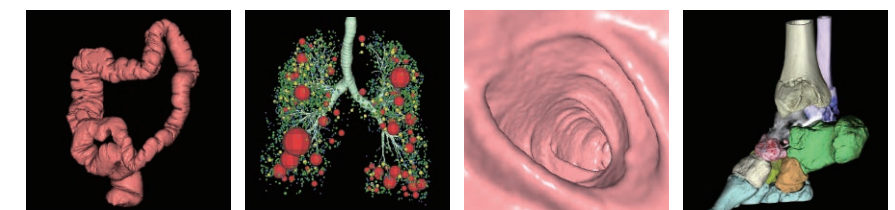
REiLI makes it happens to extract organs and simplify your work.



Lung lobe

Liver

Kidney



Colon

Lung Analysis

Virtual Endoscope

Orthopedics

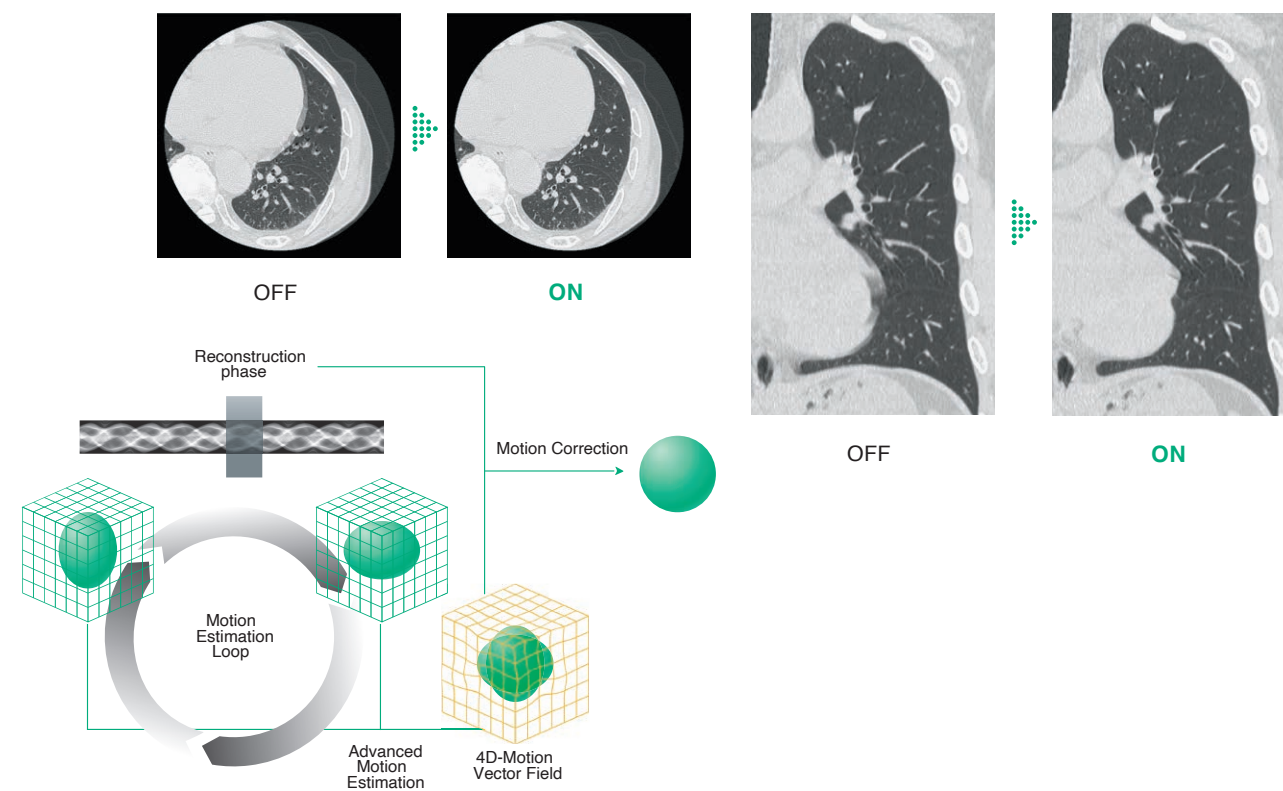
Fujifilm's Technology Addresses Motion Blur

Body StillShot

Reduces motion blur across the entire chest area

Conventional chest CT scans^{*1} have faced challenges due to motion artifacts caused by heartbeat and patient movement, making diagnosis difficult in some cases.

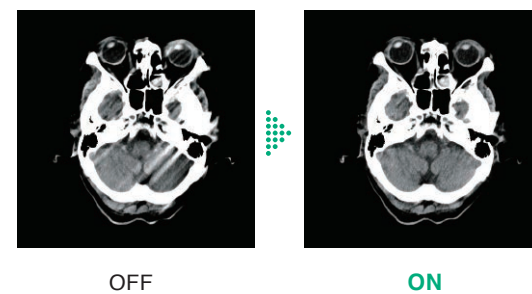
Body StillShot^{*2} calculates the direction and amount of patient movement in four dimensions from the collected raw data, providing images with minimal blurring caused by movement. It can also be used in combination with Intelli IPV^{*3}, an image reconstruction technology developed using AI, contributing to further image quality improvement.



Body Motion Correction

Reduces motion blurring
during head CT examinations

In head scanning, it corrects artifacts caused by patient movement.



^{*1}: The case of SCENARIA CT System
^{*2}: Body StillShot is a dedicated option for the Operator Console: CT-OC-23D. It can not be installed in the Operator Console: CT-OC-23C.
^{*3}: IPV stands for Iterative Progressive reconstruction with Visual modeling. Intelli IPV was developed using Machine Learning, an AI technology. The performance and accuracy of the system do not automatically change after implementation.
^{*4}: Cardio StillShot is a dedicated option for the Operator Console: CT-OC-23D. It can not be installed in the Operator Console: CT-OC-23C.
^{*5}: In case of 0.5 sec/rot and heart rate 80 bpm or less

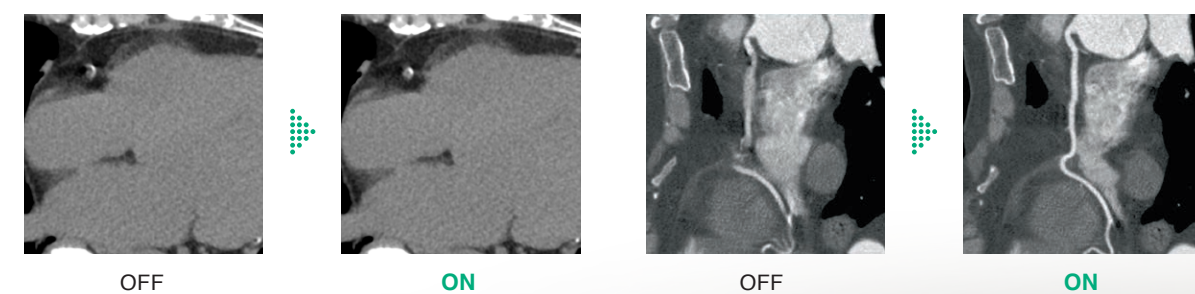
Sample clinical images from SCENARIA View CT System and Supria CT System

Cardio StillShot

Reduces motion blur during cardiac CT examinations

Conventional cardiac CT scans^{*1} were affected by changes in heart rate during scanning, such as high heart rates and arrhythmias, which affected the image quality of the entire heart and make diagnosis difficult in some cases.

Cardio StillShot^{*4} calculates the direction and amount of patient movement in four dimensions from the collected raw data and provides images with minimal motion blur due to movement. By applying corrections during image reconstruction, it achieves an effective temporal resolution of up to 28 milliseconds^{*5}.



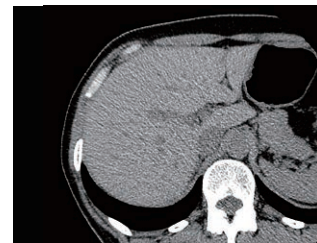
Fujifilm's AI Technology Addresses both Low Dose and High Image Quality

Intelli IPV

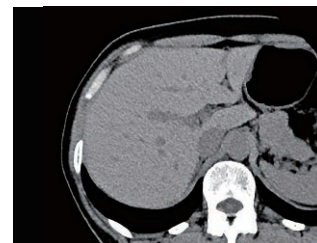


Intelli IPV is an image reconstruction developed using AI technology^{*1}. By using images obtained through sufficient iterative processing as training data, the processing speed is accelerated. Based on the Visual Model developed by Fujifilm, image reconstruction processing starting from raw data reduces NPS: Noise Power Spectrum to FBP: Filtered Back Projection, maintaining image quality even at high noise reduction rates. It reduces image noise by up to 90%^{*2,3} and radiation exposure by up to 83%^{*4}. It also improves low-contrast detection performance by up to 2 times^{*4}.

Managing Low Dose and Visibility



FBP



Intelli IPV

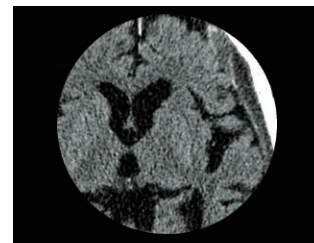
Compared to FBP,
Image noise reduction:

Up to 90% ↓
^{*2,3}

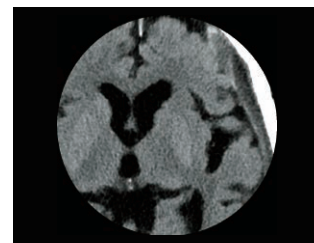
Compared to FBP,
Dose reduction:

Up to 83% ↓
^{*4}

Improving Low-contrast Resolution



FBP



Intelli IPV

Compared to FBP,
the ability of detecting
low contrast:

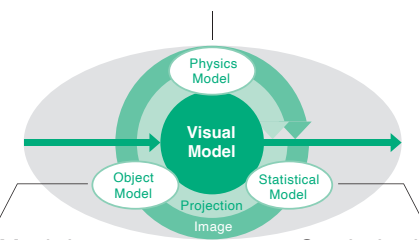
Up to 2 times ↑
^{*4}

Visual Model

Visual Model controls image noise and image quality through repeated calculations based on statistical models, object models, and physical models.

Physics Model

Using FBP as a model, noise reduction is performed while adjusting textures at equal ratios from high frequencies to low frequencies, achieving a texture close to FBP.



Object Model

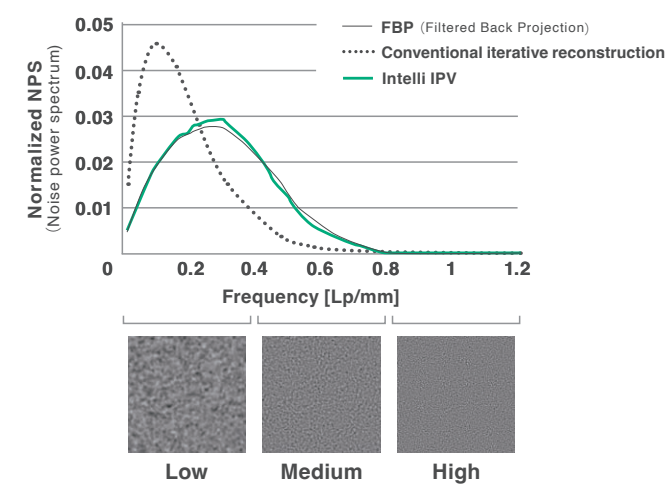
Modeling changes in shape information, considering the shape, size, and position of structures, and maintaining the structure.

Statistical Model

Noise originating from X-ray detection and circuit noise is considered statistically, and noise reduction is performed.

Achieves a texture close to FBP

Intelli IPV has adjusted the texture across a ratio from high to low frequencies, bringing noise frequency characteristics that affect visibility as close as possible to FBP.



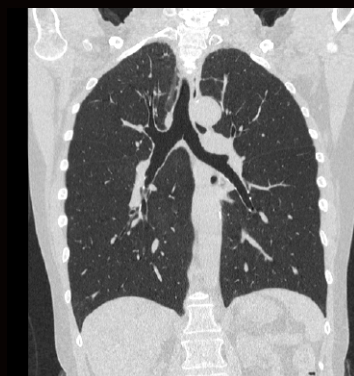
IPV stands for Iterative Progressive reconstruction with Visual modeling.

^{*1}: Intelli IPV was developed using Machine Learning, an AI technology. The performance and accuracy of the system do not automatically change after implementation.

^{*2}: It is obtained in the abdominal region.

^{*3}: Compared to FBP. It was measured using Intelli IPV intensity level Strong5 and tested to a water phantom. Depend on the clinical task, patient size, anatomic location, and clinical examination, the effect obtained may be smaller.

^{*4}: Compared to FBP. It was measured at 0.625 mm slice thickness using Intelli IPV intensity level Strong5 and tested to MITA CT IQ phantom: CCT189 which is made by Phantom Laboratory, using the model observer method results. Depending on the clinical task, patient size, anatomic location, and clinical examination, the effect obtained may be smaller.



FBP



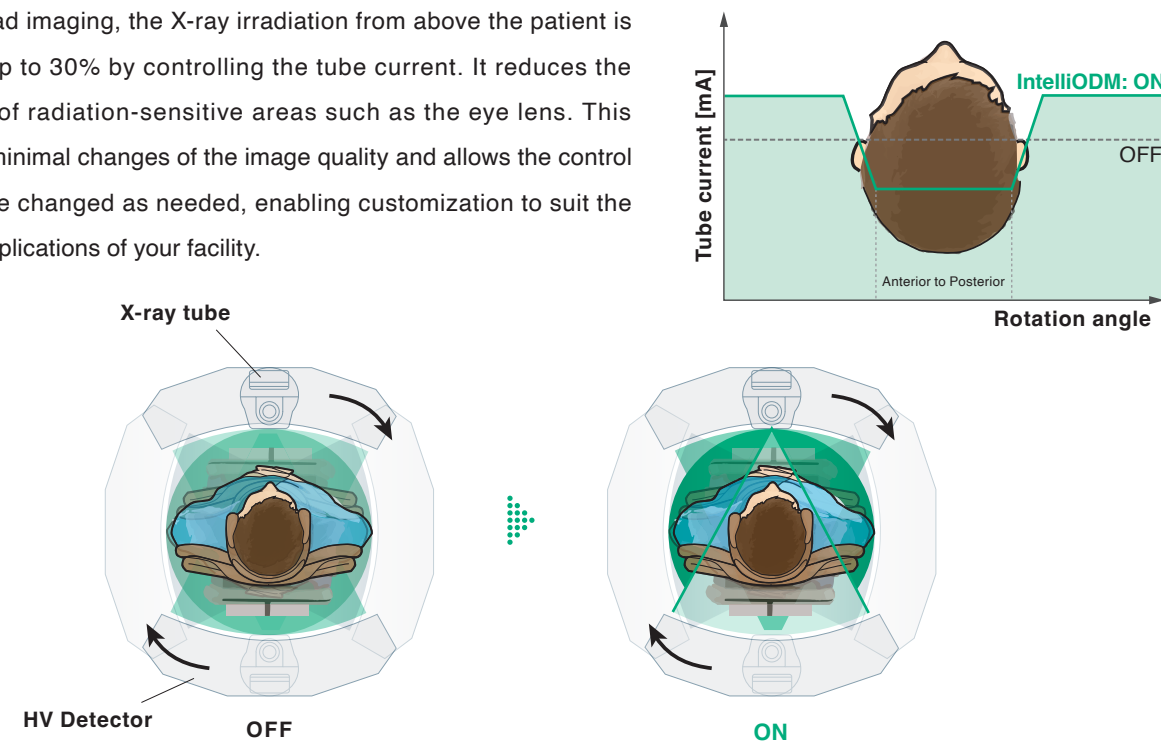
Intelli IPV

Fujifilm's Technology Addresses both Low Dose and High Image Quality

IntelliODM

Reduction of X-ray irradiation to sensitive areas

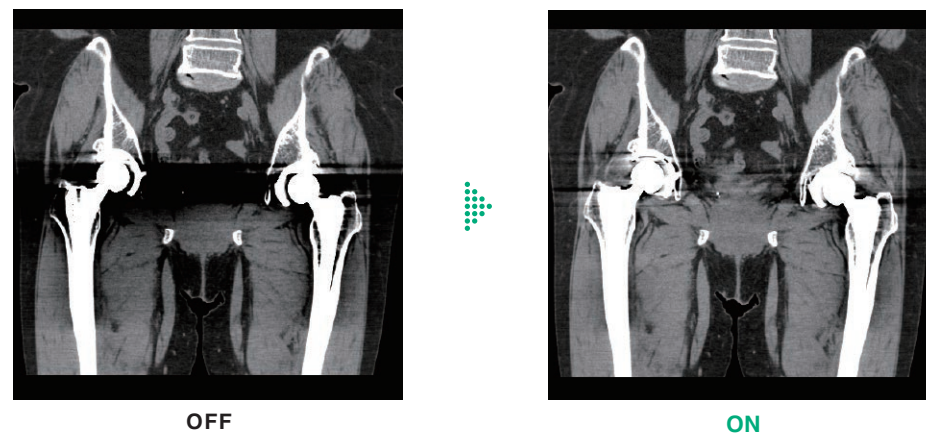
During head imaging, the X-ray irradiation from above the patient is reduced up to 30% by controlling the tube current. It reduces the exposure of radiation-sensitive areas such as the eye lens. This results in minimal changes of the image quality and allows the control range to be changed as needed, enabling customization to suit the specific applications of your facility.



HiMAR Plus

Reduction of metal artifacts

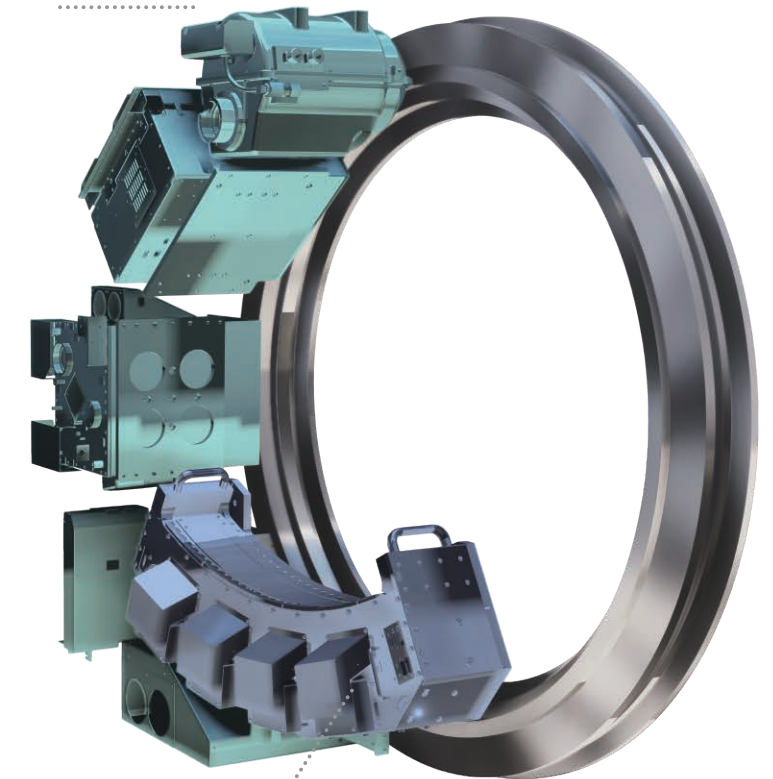
HiMAR Plus reduces metal artifacts using sequential approximation processing. It extracts metal parts, estimates artifacts, and then corrects them. The strength of the effect can be selected, allowing you to use it according to your purpose. HiMAR Plus can be used in combination with Intelli IPV.



Sample clinical images from SCENARIA View CT System

Highly Efficient X-ray Generation System

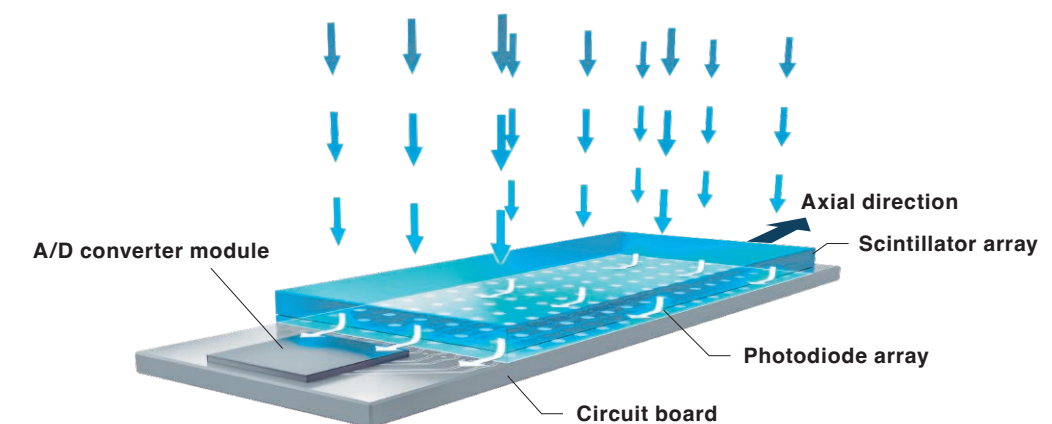
High-efficiency generator and 6MHU X-ray tube unit enable high output of 60 kW (Up to 670 mA). Also supports flexible scan conditions during low tube voltage scanning.



Full Digital HV Detector

The optical system has been redesigned, and the detector has been upgraded. The detector employs MaxiLight technology.

By eliminating the need for analog wiring between bases, electrical noise is reduced, contributing to higher image quality.



Solutions to Tackle Rising Medical Costs

by Reducing Running Costs

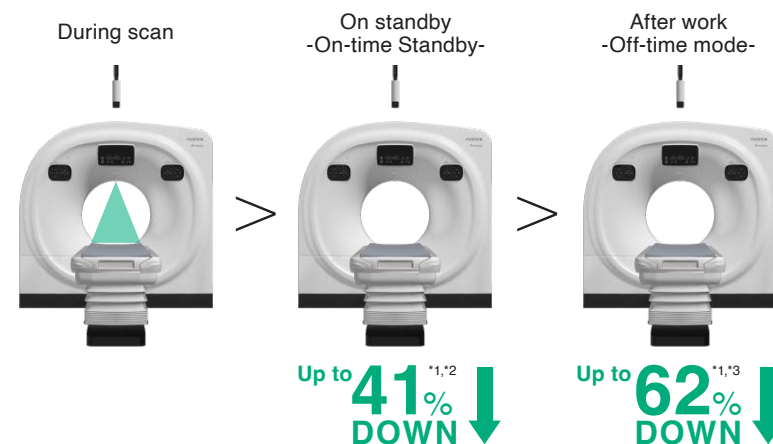
3-Unit Design For more space

The entire system comprises just three components: gantry, patient table, and operator's console. No additional units such as the system transformer are required, so the space in the CT room can be used more freely, and it can be maximized for clinical use.



Eco mode Reduction to power consumption

The On-time Standby function reduces power consumption by up to 41%^{*1,2} compared to when not in use by controlling the equipment built into the gantry. In addition, the Off-time mode function reduces power consumption during standby by up to 62%^{*1,3} compared to when not in use by shutting off the power supply while maintaining the characteristics of the detector.



Dose Management Tailors to the application

Simple Dose Report

Similar to CT images, secondary capture images can be sent with dose information.

DICOM SR

Compliant with DICOM standards, dose information can be sent as a DICOM structured report.

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- Dose Information -
Patient Name : FUJI TARO
Patient ID   : 1234567890
Height / Weight : 170.0 cm / 70.0 kg
Acc. Number  : 1
Study ID     : 000000000000000002
Study Date/Time : 2023/07/19 15:14:09
Description   : STUDY COMMENT
Total DLP : 2288.7 mGy cm

No. ScanType mAs kV CTDIvol DLP Phantom
      [mGy] [mGy cm] [cm]
1. Normal 100.0 120 55.4 664.2 16(Head)
2. Volume 125.0 120 12.9 822.3 32(Body)
3. Volume 125.0 120 12.9 822.3 32(Body)
  
```

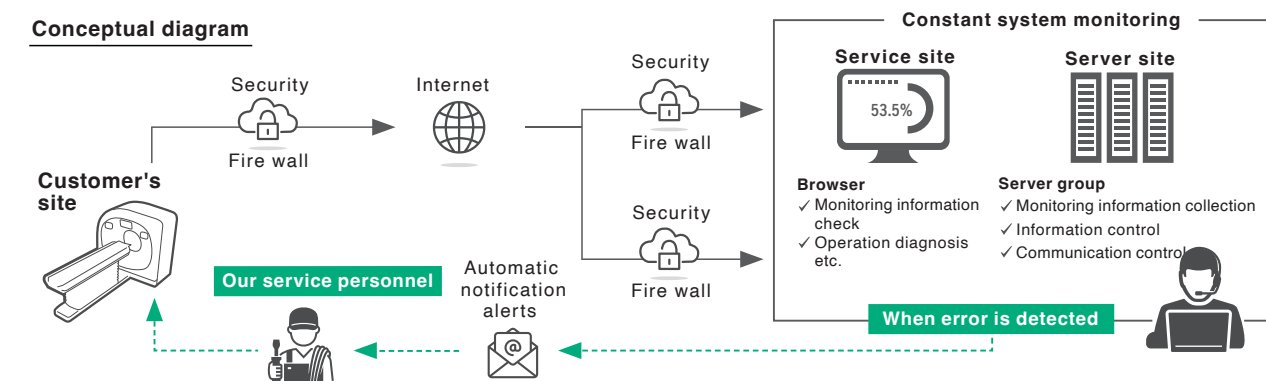
Example of a dose information

*1: It is a reduction rate of the heater's power consumption to maintain the X-ray detector's output characteristics with the Operator Console: CT-OC-23C.
 *2: In case of the Operator Console: CT-OC-23D, the reduction rate is 48%.
 *3: In case of the Operator Console: CT-OC-23D, the reduction rate is 60%.

Smart Support

Monitoring after implementation

We developed using big data analysis focused on system operating status and Fujifilm's "Fault Prediction Diagnosis Service". By utilizing 24-hour monitoring and predictive diagnosis that indicate system status, we have adjusted inspection and parts replacement cycles and improved system operating rates.



Main features

- Constant system monitoring**
We monitor your systems 24 hours a day to detect abnormalities immediately.
- Automatic notification**
When an abnormality or performance degradation is detected, an alert is automatically sent to our service site.
- Security**
We protect information appropriately through encryption, mutual authentication communication, and other measures.