

# APERTO Lucent

Prime Open MRI



## 0,4T × open design

APERTO Lucent offers sophisticated MR imaging through a permanent magnet with 0.4T static field strength together with a compact gantry. Our technological expertise enabled the design and creation of a single-pillar MRI structure which offers premium open space.


**APERTO Lucent**

Open Yo  
Make

APERTO Lucent

Prime Open MRI

Vision,  
Smart Choice.



As the only single-pillar MRI system within Our range, the APERTO Lucent offers an expansive, panoramic open aspect designed to reduce patient anxiety and provide a comfortable examination environment.

# ur Vision, a Smart Choice.

## ■ Footswitch

**Allowing the operator to focus on the patient**

The adopted footswitch enables hands-free control of the table in the vertical and horizontal direction, allowing the operator to focus on patient care.

■ Open Design

**Created to expand space and light, helping to reduce claustrophobia and anxiety**

The single-pillar design creates an open examination area which together with the rounded architecture and innovative colour design establishes a secure, calming atmosphere for the patient.



■ Lateral Slide

**Enables high-definition imaging even in off-centered regions**

In MRI, traditionally the highest definition in imaging can be obtained at the centre of the gantry. This is due to the high uniformity of the static field and RF radiation strength, along with the high linearity of the gradient magnetic field.

APERTO Lucent's table can be moved laterally (right and left) inside the gantry. Therefore, any region that is out of the midline (shoulder, knee, etc.) can be centralized to the magnetic field.



■ Floating Table

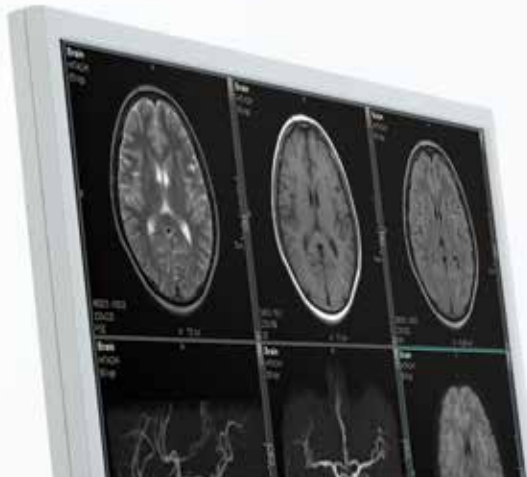
**Designed for comfort, accessibility and isocentric imaging**

The lateral slide function allows the floating table to move right and left inside the gantry and the target region can be positioned easily in the centre of the magnetic field. The table can be lowered to a minimum height of 490 mm, allowing easier accessibility for children and elderly patients. The 700 mm wide table top offers patients both comfort and a 'feel-good' factor, helping to reduce claustrophobia.



# Prime Imaging

Our magnetic circuit technology and unparalleled diagnostic functions enable crisp, high-definition imaging of clinically challenging regions and applications.



## ■ RADAR\*

### **Motion reduction capability**

RADAR uses radial scan technology to mitigate motion artefact caused by a patient's body movement due to voluntary or involuntary motion. Available with T2WI but also T1WI and FLAIR imaging in any plane and any body region including the head and shoulder joint, which are susceptible to respiration movements and the cervical spine that can be affected by swallowing movements. RADAR can help reduce repeat scans and improve image quality.

## ■ 3D-GEIR\*

### **Acquire high contrast, 3D, high spatial resolution images**

This function offers high-speed T1WI imaging through Gradient Echo with IR pulse. This allows high contrast, 3D, high spatial resolution images to be acquired. This function can be used for measurement of volume data when imaging the head.

## ■ VASC-ASL\*

### **Offers non-contrast MR angiography technique**

VASC-ASL is a non-contrast MRA imaging function that uses 3D BASG (Balanced SARGE) to visualize the blood flow labelled with IR pulses. This function is used to produce images of portal veins, renal arteries, and upper and lower extremity arteries.

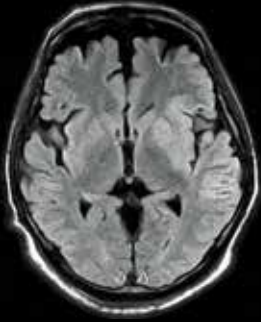
## ■ VR (Volume Rendering) Function\*

### **Supports diagnosis of complex vascular structures**

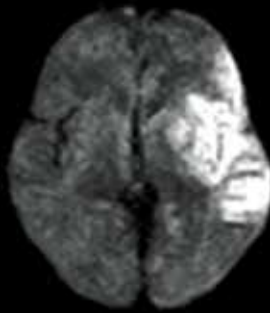
Volume rendering, a reconstruction method, can be created on the console. The blood flow movement can be determined stereoscopically compared to MIP, providing support to diagnosis of regions with complex vascular structures such as the head.

\*Option

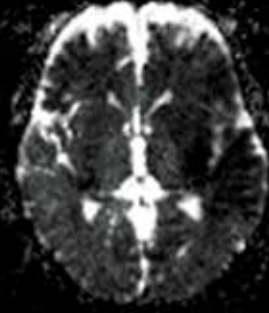
[Hyperacute Cerebral Infarction]



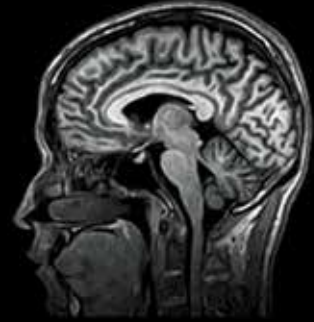
FLAIR



DWI



ADC map



3D-GEIR

[Cerebral Aneurysm]



3D-TOF VR image

[Internal Carotid Stenosis]



2D-TOF MIP image

[Neck Pulse-gated MIP image]

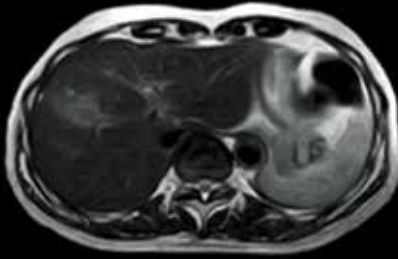


3D-VASC-ASL (Non-Subtraction technique)

[Upper extremity Pulse-gated MRA MIP image]



[Metastatic Liver Tumour]

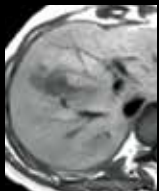


T2WI

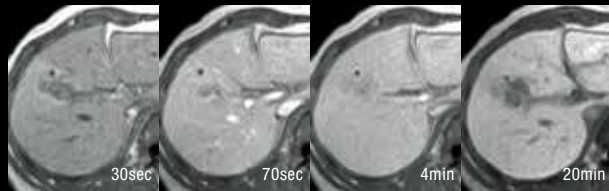
[Abdominal MRCP]



Respiratory-gated MIP image



T1WI



2D-RSSG Dynamic EOB

[Right Ovarian Dermoid Cyst]

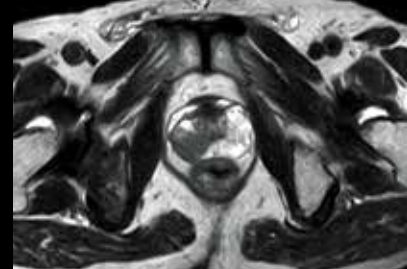


T1WI



FatSep-T1WI

[Prostate Cancer]



T2WI

[Ossification of Posterior Longitudinal Ligament]



T2WI

[Multiple Myeloma]

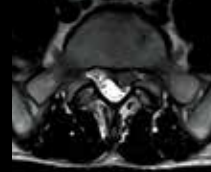


T2WI

[Disc Herniation]



T2WI



[Lumbar Spondylolysis]



FatSep-T2WI

[3D Neurography]



FatSep-T2\*WI

[High Resolution image]



T2WI

[Shoulder Joint]



T1WI RADAR OFF



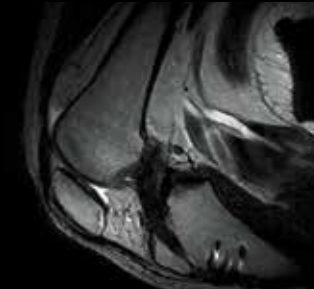
T1WI RADAR ON

[Lunate Malacia]



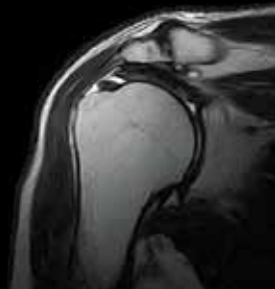
FatSat-PDWI

[ACL Post-surgery (Flexed Position)]

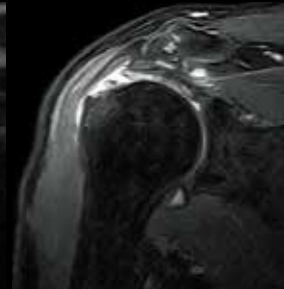


T2WI

[Rotator Cuff Partial Tear]

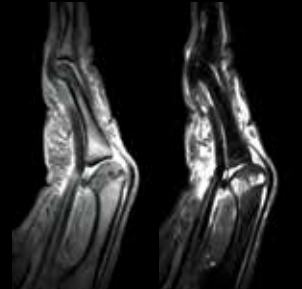


T2WI



FatSep-T2WI

[Finger Fracture]



T2\*WI

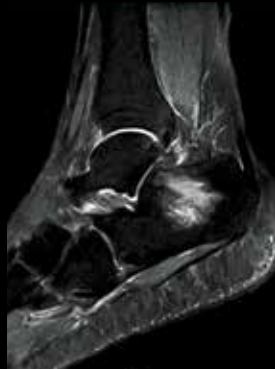
STIR

[Meniscus Injury]

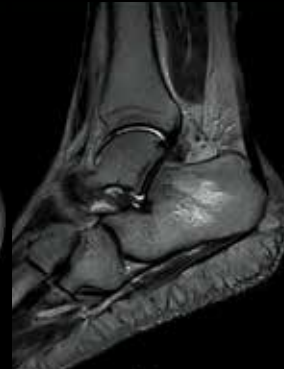


T2\*WI

[Suspicion of Cellulitis, Osteomyelitis]

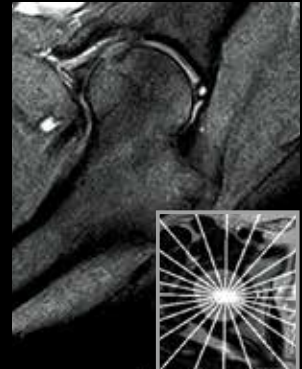


FatSat-PDWI



T2WI

[Labral Tear]



T2\*WI RadialStack





■ SuperShim

**Reduces magnetic field non-uniformity which cannot be corrected with primary shimming**

SuperShim is a technology that increases the uniformity of the static field, which is of paramount importance in MRI. Non-uniformity in the magnetic field cannot be fully corrected with first order shimming which performs linear correction. SuperShim is provided to reduce non-uniformity in the magnetic field by enabling high order shimming.

■ FatSep Function

**Provides fat suppression imaging with high SNR**

The FatSep (fat water separation) function enables imaging of different TE to acquire in-phase and out-of-phase images simultaneously. The two types of images are added to form fat suppressed images. Through this additional process, FatSep provides fat suppressed images with a good SN ratio and clarity. It can also provide a Fat image through a subtraction process.

■ High Reconstruction Imaging

**Supports high-definition imaging**

This function enables high spatial resolution imaging which result in higher definition images of joint regions required for orthopedic areas. An image reconstruction matrix of 2048 x 2048 is achieved through the high-speed imaging processor.

■ High Sensitivity Receiver Coils

**Especially effective for images with a small FOV and high spatial resolution**

Regions that require a small FOV and high spatial resolution as in orthopedics need higher sensitivity receiver coils. The solenoid coil adopted in the APERTO Lucent delivers this high sensitivity. The small diameter coil is tailored to fit the body and the target region easily positioned to the centre of the coil where sensitivity is at the highest. This is optimal for acquiring images of regions that require a small FOV together with high spatial resolution, as in orthopedics.



# Prime Operation

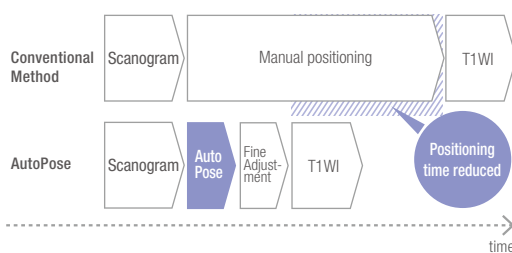
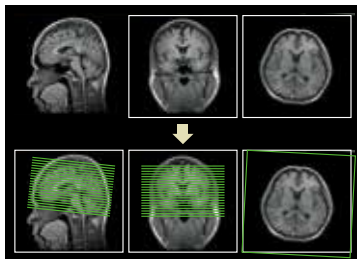
Enhanced operability supports efficient and reliable diagnosis, together with ease of operation and image sharing capabilities.



## ■ AutoPose\*<sup>1</sup>

**Supports correct image cross-section settings and reduces strain on the operator**

AutoPose is a function that supports slice line parameters. This function allows faster set-up of the OM or AC-PC lines used in head examinations and reduces strain on the operator. Prior settings such as teach/register and 3D data acquisition are not required.



## ■ Unified, eye-friendly colour to minimize eye strain

**A user interface that is easy to understand and operate**

A soft celadon-based colour set, has been adopted for the GUI (Graphical User Interface). MRI imaging parameters that can be complex are more easily displayed on the Windows-based wide screen.



■ Customization of protocols

**Supports efficient registration and alteration of protocols**

Routine protocols can be easily registered and changed by the operator, even during the examination to optimize the settings according to the patient and clinical requirements.



■ Curved MPR

**Reconstruction capability of various cross-sectional images from the 3D images**

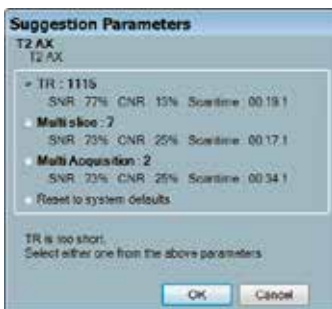
Arbitrary curved cross-sections can be reconstructed using data acquired through imaging. In addition, multiple curved-sections can be reconstructed simultaneously.



■ User Interface (UI) suggestions

**Supports alteration of imaging parameters**

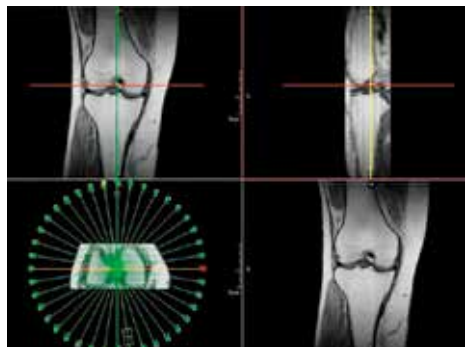
This function provides guidance for parameter settings. During protocol change, several options are displayed to allow the operator to select the parameter most appropriate for that particular scenario.



■ Radial MPR

**Offers simultaneous image reconstruction of multiple cross-sections**

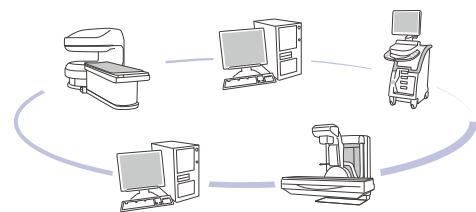
Radial MPR images are created which can be useful when diagnosing complex structural tissue such as within the knee joint.



■ DICOM Function

**Offers various interfaces**

The DICOM interface is included as standard in the APERTO Lucent which adapts to the hospital's current networks and which will continue to evolve and upgrade over time. DICOM MWM<sup>\*1</sup>, SWF<sup>\*1</sup>, and PIR<sup>\*1</sup> functions are also supported.

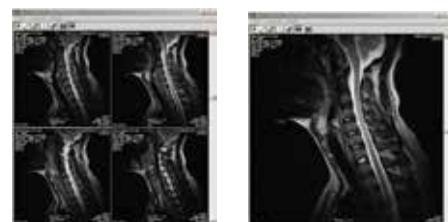


■ IHE PDI Function<sup>\*1</sup>

**Extensive coordination for compatibility with the hospital's in-house and external network systems**

Support for the IHE PDI<sup>\*1</sup> standard is provided to enable various data exchanges, such as image zoom and rotation display, with other systems supporting the PDI standard. Ability to write DICOM data and simple browser software<sup>\*2</sup> to a CD-R are also included.

<sup>\*1</sup> Optional. <sup>\*2</sup> Cannot be used for diagnostic purposes.

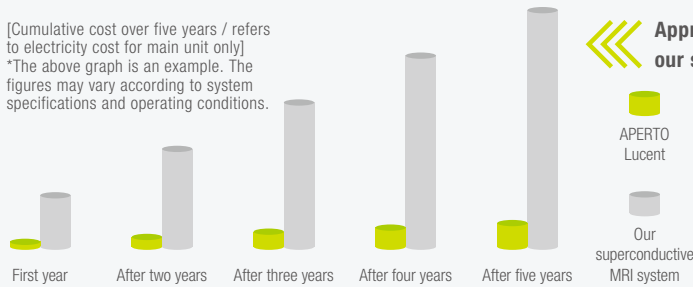


# Why our Open MRI is first choice around the world.

## 01 Making MRI affordable

Low running costs together with an attractive initial investment accelerate your MRI business and offer an excellent return on investment

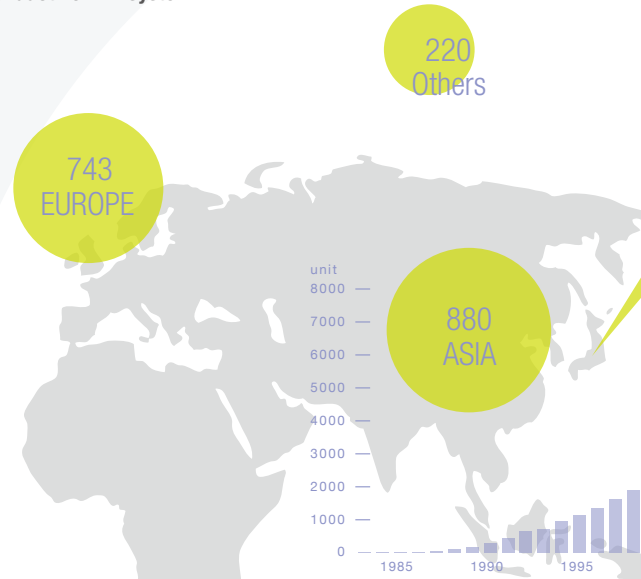
[Cumulative cost over five years / refers to electricity cost for main unit only]  
\*The above graph is an example. The figures may vary according to system specifications and operating conditions.



Approximately 1/10 compared to our superconductive MRI system

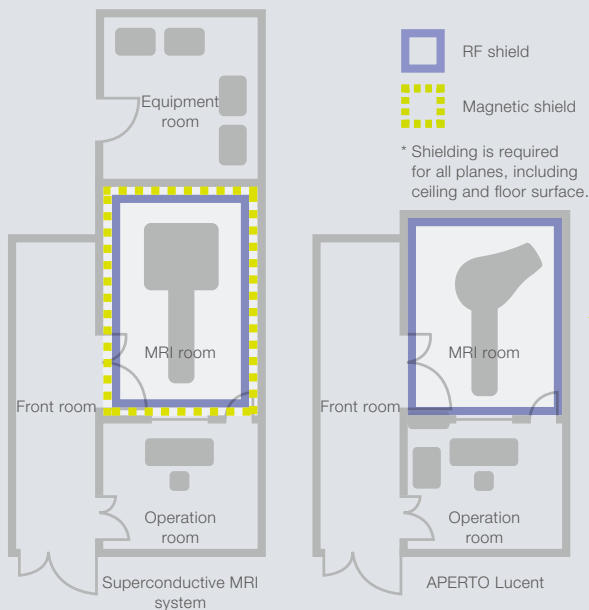
In permanent magnet Open MRI technology, the magnetic field remains strong over the years with barely any change. Unlike superconductive MRI, there is no need for additional equipment and infrastructure in order to maintain the magnetic field, thereby keeping the costs low. A low capacity power supply means the initial power system cost can be kept low, and lowering energy consumption reduces monthly running costs too. The APERTO Lucent does not require a cooling system negating the need for a complex and costly infrastructure and the installation area can be minimized as a result.

System	Power supply capacity
Our superconductive MRI system	50kVA~125kVA
APERTO Lucent	9.5kVA



## 02 Ease of Installation

Reduced construction costs with easy siting



Magnetic shielding is not required

MRI installation usually includes two types of shielding: RF shielding to block any high frequency noise from the outside and magnetic shielding to suppress leakage of the magnetic field from the inside. However, a permanent magnet MRI system generally does not require any specific magnetic shielding, so the cost of construction is reduced. Removing many of the construction processes usually associated with superconductive systems, results in faster and easier installation ensuring your Open MRI is up and running in a shorter timeframe.

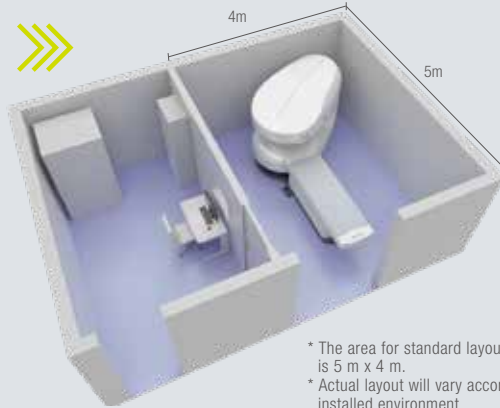
Over 7000

For more than 30 years, we  
With more than 7,000 MRI  
We are at the forefront

# 03

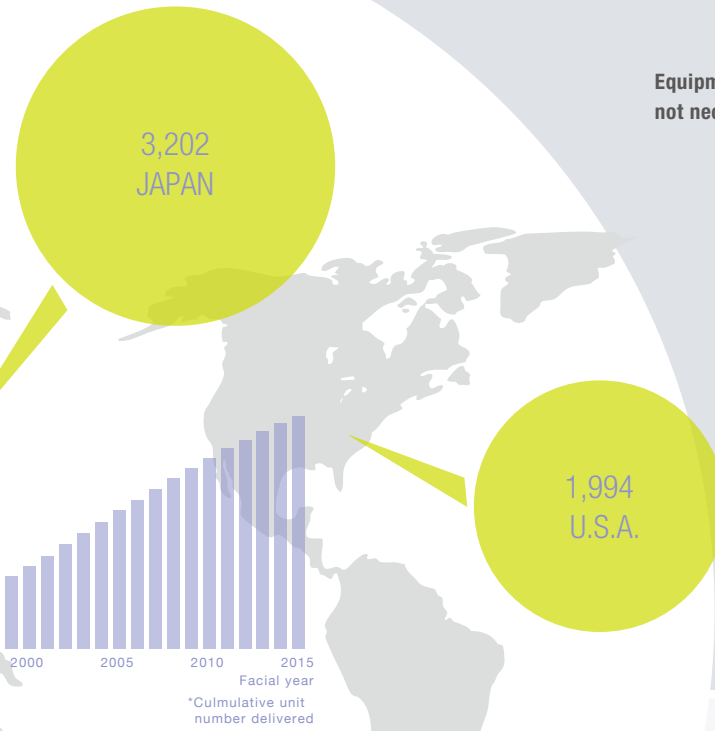
**Small Footprint**  
 APERTO Lucent's compact design significantly reduces the space required for installation

Equipment room not necessary



\* The area for standard layout of scan room is 5 m x 4 m.  
 \* Actual layout will vary according to installed environment.

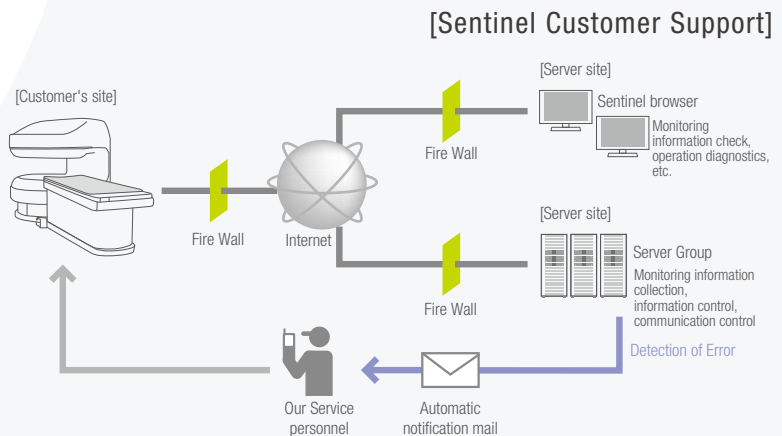
APERTO Lucent consists of three main units: the gantry, console and power supply system; fewer than its superconductive counterpart. The magnetic field leakage is also kept low, and in turn, the imaging room can be small. As an equipment room is unnecessary, the overall footprint is reduced and the space saved can be used for other purposes.



Units\*

have been leading the way in open MRI. systems delivered worldwide\*, of Open MRI technology

\* Based on our factory shipment records, as of end of March, 2016.



This ensures that your system is kept running smoothly and efficiently through round the clock monitoring. It provides proactive first class reliability for stability and maintenance.

\* Users are required to set up their network environment to make it compatible with Sentinel.  
 The level of service may vary depending on the contractual coverage.



System status screen



# APERTO Lucent

Prime Open MRI

**FUJIFILM**

**FUJIFILM Healthcare Corporation**

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