

TOSHIBA

Toshiba Activion 16 Product Data

Multislice helical ct scanner

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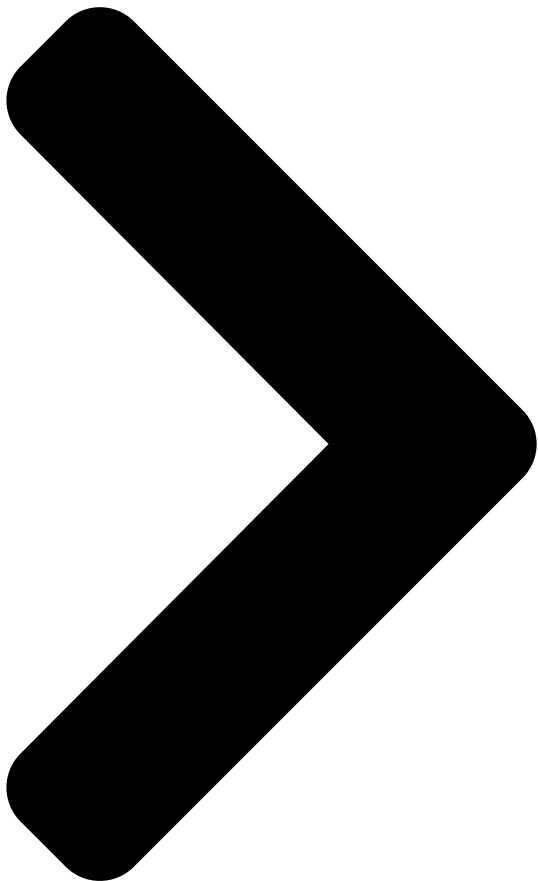
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Product Data

No. MPDCT0290EA

TOSHIBA

APPLICATION

Activion

TM

16 is a 16-slice Helical CT system that supports whole-body scanning.

The system generates a minimum of 32 slices per 1.5 seconds using the Selectable Slice-thickness Multirow Detector (SSMD).

In addition, the high-speed rotation mechanism and the fast reconstruction unit of the system allow quick image acquisition to further improve throughput in CT examinations.

FEATURES

Acti

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- Multislice detector

Detection elements with high-power and uniform output characteristics enable a minimum slice thickness of 0.5 mm, and accurate isotropic data can be acquired.

The adoption of the SSMD method means that high-speed as well as high-resolution scanning are supported.

The minimum slice thickness is reduced to 0.5 mm, making it possible to select the desired slice image for scanning from among 0.5 mm, 1 mm, 2 mm, 3 mm, 4 mm, and 5 mm, depending on purpose.

- High-speed scan

Data for 16 slices can be acquired simultaneously in each scan. For example, scanning of the lung fields over a range of 30 cm at a slice thickness of 1 mm can be completed in 10 seconds or less.

Since the acquisition is completed in a short period of time, this obviously alleviates the burden on the patient, but also improves throughput by eliminating the need to wait for the X-ray tube to cool down.

- High-quality images

It is now possible to use thin-slice helical scanning for routine examinations. Based on high-resolution voxel data, smooth and finely-detailed 3D and MPR images can be obtained with the same size in the X, Y, and Z directions (isotropic). In CT cerebral angiography, for example, scanning over a range of 40 mm at a slice thickness of 0.5 mm can be completed in 4 seconds and image processing (such as 3D, MPR, or tomographic image processing) can be performed for a single volume acquisition dataset through simple operations.

In addition, by stacking the data acquired using thin slices, images with reduced partial volume effects can be obtained.

Multislice HELICAL CT SCANNER

- Outstanding operability

Operability is improved as described below.

- In 3D image processing or time-consuming image processing such as for regions in which calcified areas are superimposed on contrast medium, bone elimination can be performed easily while observing reference images.

- Most 3D images can be generated using the optimal conditions by simply selecting an appropriate preset icon.

- Selectable image slice thickness

It is possible to acquire the data for routine examination, detailed examination and to generate 3D images in a single scan.

For example, by performing a helical scan with a 0.5-mm



slice thickness, it is possible to generate images at various slice thicknesses from the same data, such as 10-mm slice images for routine examinations, 5-mm slice images for detailed examinations, and 0.5-mm slice images for generating 3D images. It is also possible to set the image slice thickness with multiple ranges. For example, by performing a helical scan of the head with a 0.5-mm slice thickness, it is possible to generate images with optimal slice thickness for each region in a single reconstruction, such as 5.0-mm slice images for the cranial base as well as 10-mm slice images for the cerebral parenchyma.

- Exposure reduction

This system incorporates the quantum denoising software (QDS) as a standard function, which is effective for reducing patient exposure.

The QDS is an adaptive filter that can recognize reconstructed objects. It can perform sharp filter processing for regions where the degree of change is high, such as tissue borders; and smooth processing for regions where the degree of change is low (close to uniform). This makes it possible to further improve the quality of images acquired using normal dosages, and improves the quality of images acquired with small dosages to an image quality level obtained with normal dosages. As a result, it is possible to reduce the exposure dose for the patient, since the scanning can be performed using the optimal dose for the expected image quality.

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Summary of Contents for Toshiba Activion 16

[Page 1](#) Multislice HELICAL CT SCANNER Product Data No. MPDCT0290EA APPLICATION • Outstanding operability Operability is improved as described below. Activion 16 is a 16-slice Helical CT system that supports – In 3D image processing or time-consuming image processing such as for regions in which calcified areas are The system generates a minimum of 32 slices per 1.5 sec- superimposed on contrast medium, bone elimination onds using the Selectable Slice-thickness Multirow...

[Page 2: Performance Specifications](#)

SURE PERFORMANCE SPECIFICATIONS • Fluoro (option) Conventional CT fluoroscopy shows only a single slice, Scan parameters SURE Fluoro (Multislice CT fluoroscopy) permits realtime • Scan regions: Whole body, including head image reconstruction to display 3 images obtained by • Scan system: 360°...

[Page 3](#) MPDCT0290EA Patient couch Helical scan • Vertical movement • X-ray tube rotation System: Hydraulically driven speed: 0.75, 1, 1.5 s/360° – Speed of vertical • Continuous scan time: Max. 100 s movement: 16 to 24 mm/s (50 Hz) • Scan start time delay: Min.

[Page 4](#) SURE • Image reconstruction • Start – Number of images: Max. 4 images/scan – Continuous scan time: Max. 100 s – Image interval: Reconstruction is possible in – Region of interest increments of 0.1 s. (ROI): Max. 3 ROIs • Reconstruction time: Min.

[Page 5](#) MPDCT0290EA • Image reconstruction time • Autoview function: Software control, function key – CT scan: Min. 0.17 s • Multi-frame display: Reduction/cut-off display, ROI – Scanoscopy: Reconstructed and displayed processing simultaneously with scanning • Inset scanogram display (real-time reconstruction) • Selective related information display •...

[Page 6: Image Quality](#)

(FC30): 0.55 ± 0.05 mm Image transfer/conversion – Scan parameters • 1000BASE-T, 100BASE-TX, 10BASE-T • Tube voltage: 120 kV • Toshiba protocol • Tube current: 200 mA • DICOM storage SCU • Scan time: 0.75 s • TIFF conversion • Slice thickness: 2 mm ...

[Page 7](#) MPDCT0290EA SYSTEM COMPONENTS AND THEIR FUNCTIONS Gantry The scanner is composed of the gantry and the patient couch. The scanner uses a fan-shaped continuous X-ray beam to scan the region to be examined. Transmitted X- rays are detected and converted into electrical signals by the SSMD.

[Page 8: Operating Features](#)

These include algorithms for the abdomen, head, bone, Scanning lung, small structures, soft tissues, etc. • Toshiba's scanoscope function provides a projection image of the patient for high-precision advance planning Image display and processing of the slice positions.

[Page 9: Dimensions And Mass](#)

Less than 5% • Power voltage fluctuation: Less than 10%** * Please consult Toshiba in the case of other voltages or excessive power fluctuation. ** Represents the total voltage fluctuation due to load and power variation. Grounding Grounding must be provided in accordance with local regulations for medically used electrical equipment.

[Page 10: Power Distribution Board](#)

Power distribution board Room layout example In case of In case of 3-phase, 400 V 3-phase, 200 V Ground resistance: As per applicable legal requirements. 100 A 150 A Ground bar System System transformer (option) Ambient conditions Temperature Humidity Heat generation Scan room Gantry 20°C to 26°C...

[Page 11: Installation Requirements](#)

MPDCT0290EA Installation requirements Checks before bringing-in the unit • Check in advance the width of the corridor, the dimensions of the entrance, and the dimensions and maximum • Before installing the gantry, check the maximum permissible allowable load of the stairs and elevators to ensure that it is suitable floor load.

[Page 12: Outline Drawings](#)

OUTLINE DRAWINGS Gantry and Patient Couch...

[Page 13](#) MPDCT0290EA OUTLINE DRAWINGS (35.4) (13.5) (21.9) (TILT ANGLE) 2,070 (81.5)
Gantry...

[Page 14](#) OUTLINE DRAWINGS 2,190 2,187 (86.2) (86.1) 430* 1,862 2,690 (17) (73.3) (105.9) *
When the arm up holder is mounted. Patient Couch (for the long patient couch version)

[Page 15](#) MPDCT0290EA OUTLINE DRAWINGS 1,890 1,887 (74.4) (74.3) 1,562 2,390 430* (17)
(61.5) (94.1) * When the arm up holder is mounted. Patient Couch (for the short patient couch
version)

[Page 16](#) Some of the units shown in the photograph on the front page differ from those
shown in the drawings above. TOSHIBA MEDICAL SYSTEMS CORPORATION
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