



Toshiba FDX3543RP Technical Data Manual

X-ray flat panel imager

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FEATURING:

● **TOSHIBA**

Excellent Sensitivity & Resolution
● **Leading Innovation >>>**

● Excellent Image Quality

● Excellent Reliability

- Excellent Sensitivity & Resolution -

● Toshiba's advanced and proven fine structured CsI:TI and direct vapor deposition technology deliver higher sensitivity and better resolution.

● Reflection coating on CsI:TI screen enables excellent Detective Quantum Efficiency

(DQE)

and low noise.

TOSHIBA

Leading Innovation >>>

● A high Modulation Transfer Function (MTF) FPD is the result of these outstanding technologies and high contrast images, while covering the benefits of lower radiation dose to the patient. The FDX3543RP achieves a new level of functionality and reliability in developing functional FPD's for system manufacturers.

- Excellent Image Quality -

● Achieves a raw image with a low-noise through the use of Toshiba's own circuit technology.

● Images have a shorter lag time with an improved refresh function, suitable for radiographic double exposure.

● Driver software (attached to the product) provides excellent, clear raw images, adopting ghost image correction, offset correction, gain correction and defect corrections.

- Excellent Reliability -

● Excellent durability by using CsI:Tl screen direct vapor deposition method.

● The structure is highly reliable and protected from degradation due to the use of a unique moisture-proof sealing method for the CsI:Tl screen

★ The information contained herein is presented only as a guide for the applications of our products.

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★ The information contained herein may be changed without prior notice. It is therefore advisable to contact TETD before proceeding with the design of equipment incorporating this product.

Technical Data

X-Ray FLAT PANEL IMAGER

FDX3543RP

Active Area: 35(H)×43(V)cm

(14" ×17")

No.TE-FDX3543RP 2012-08-16

TD

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Related Manuals for Toshiba FDX3543RP

[Laboratory Equipment Toshiba FDX4343R Technical Data Manual](#)

X-ray flat panel imager (28 pages)

Summary of Contents for Toshiba FDX3543RP

[Page 1](#) ★ The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA ELECTRON TUBES & DEVICES CO., LTD. (TETD) for any infringements of patents or other rights of the third parties which may result from its use.

[Page 2](#) FDX3543RP COMPONENTS AND CHARACTERISTICS Flat Panel Sensor Unit: Sensor Protection PlateCarbon Fiber Plate Cooling Natural Air Cooling Input DC15V (from Interface Box) Power ConsumptionMaximum 10W Overall Dimensions384×460×15mm (W(H)×D(V)×(H)) Weight 3 kg (approx.) Interface Box: Input

[Page 3](#) FDX3543RP MAIN CHARACTERISTICS Image Format: X-ray Conversion LayerCesium Iodide (CsI) with Amorphous Silicon (a-Si) Photodiode Active Area35(H)×43(V)cm (14×17 inch) Pixel Matrix2448(H)×2984(V) Pixel Pitch143 μ m Cycle TimeShot to Shot 6sec Performance: Limiting Resolution

[Page 4](#) FDX3543RP Product Components and Interface: Detector X-ray Control Unit (User) Control Board X-ray Sync Interface DC15V Image Data &Control Ethernet Gate Driver ROIC Unit PC (User) TFT Panel NOTE: Do not disconnect Ethernet connection while DC15V is operating and supplying to Sensor Unit.

[Page 5](#) FDX3543RP Image Acquisition Communication Block Diagram: Sensor unit Image Data Panel Unit Digital Unit Generator X-ray Sync DC Power Image Data Interface Box DC Power DC Power Power Unit Image Data Communication Availability: Ethernet Command Control D-Sub Signal Control Signal Name...

[Page 6](#) FDX3543RP Image Acquisition Control Interface: D-Sub Signal Control Interface Operation Sequence Description of the sequence 1. By receiving "EXP_REQ" during "Refresh" status proceeds to "Exposure" after completion of "Refresh". 2. Continues "EXP_OK" signal ON during "Exposure". ON period is defined by Image Acquisition mode table.

[Page 7](#) FDX3543RP (2) Double Exposure FPI Drive Ready Exposure Read Exposure Read ② ① EXP_RE <IN> EXP_OK <OUT> EXPOSURE DATA_STRAGE 1st image data 2nd image data FPI ENABLED A: EXP_REQ width Minimum 1ms B: Refresh period For line drive (2984 Line scan) 80 ms...

[Page 8](#) FDX3543RP Image Acquisition Control Interface: Ethernet Interface Command Control Operation Sequence Description of the sequence 1. By receiving "EXP_REQ" request command during "Refresh" status proceeds to "Exposure" after completion of "Refresh". 2. Continues "EXP_OK" signal ON during "Exposure". ON period is defined by Image Acquisition mode table.

[Page 9](#) FDX3543RP (2) Double Exposure FPI Drive Ready Exposure Read Exposure Read ② ① EXP_RE <IN> EXP_OK <OUT> EXPOSURE DATA_STRAGE FPI ENABLED ① EXP_REQ EXP_OK period Maximum 150 ms ② Double EXPOSURE cycle periodMaximum 1700 ms (case EXPOSURE 500 ms)

[Page 10](#) FDX3543RP Image Acquisition Control Interface of Interface Box: 1. Pins assign Pin No Signal name Contents Not connected Image acquisition (X-ray exposure) EXP_REQ+ Input Request signal + Image acquisition (X-ray exposure) 0_TEXP_OK+ Output Period signal +

0_EXP_OK+ (OC) Output Open Collector +...

[Page 11](#) FDX3543RP 4. Output Circuit 4.1 5V CMOS Level Type FPI Side User System Side Pin 3 Pin 8 D-Sub 9 Pin Connector 4.2 Open Collector Type FPI Side User System Side Protective 22Ω...

[Page 12](#) FDX3543RP The information about EMC conformity (IEC60601-1-2:2007) Guidance and manufacturer's declaration - electromagnetic emissions The X-Ray FLAT PANEL IMAGER (hereafter called FPI) is intended for use in the electromagnetic specified below. The customer or the user of the FPI should assure that it is used in such an environment.

[Page 13](#) FDX3543RP Guidance and manufacturer's declaration - electromagnetic immunity The FPI is intended for use in the electromagnetic specified below. The customer or the user of the FPI should assure that it is used in such an environment. Immunity IEC60601 Compliance...

[Page 14](#) FDX3543RP Guidance and manufacturer's declaration - electromagnetic immunity The FPI is intended for use in the electromagnetic environment specified below. The customer or the user of the FPI should assure that it is used such an environment. Immunity IEC 60601 Compliance Electromagnetic environment -...

[Page 15](#) FDX3543RP Recommended separation distances between portable and mobile RF communications equipment and the FPI. The FPI is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the FPI can help prevent electromagnetic interference...

[Page 16](#) FDX3543RP INSTALLATION For installing the FPI in the apparatus, refer to the dimensional outlines. INSTALLING HOUSING IN APPARATUS: 1. Surface of the base plate that locates FPI on the apparatus should be flat and smooth. 2. It is necessary to clean both surface of FPI and the base plate of the apparatus before FPI is installed.

[Page 17](#) FDX3543RP MAINTENANCE AND CHECK DAILY CHECK ITEMS Before using the sensor unit, check the following items: (1) Environment - The environmental conditions for operation must be adequate. (2) Appearance - Wiring and appearance must be free from any abnormality. (3) Operation - The sensor unit must operate normally after power on.

[Page 18](#) FDX3543RP SAFETY PRECAUTIONS AND WARNING Find this document before using X-Ray FLAT PANEL IMAGER (FPI) This document describes the attention of equipment manufactures and users to use safety X-Ray FLAT PANEL IMAGER (hereafter called FPI). Please find the technical data sheet of each product and this document "SAFETY PRECAUTIONS AND WARNING"...

[Page 19](#) FDX3543RP 7. Handling Do not hold the FPI connector and sensor unite cable when lifting and/or moving the FPI. Please be careful not to drop the FPI. If dropped, check appearance and do not use FPI if it has abnormality.

[Page 20](#) FDX3543RP 15. Stop Operation A limited operating life and the possibility of random failures are inherent to FPI and shall be taken into account for the protection of personnel and equipment. The operation of FPI under inappropriate conditions, either due to the lack of care or knowledge, can lead to grave risk to the life and limb of personnel, independent of the risk of FPI and/or equipment damage.

[Page 21](#) FDX3543RP 25. Temperature Sensor The FPI is equipped with temperature sensor. Alarm appears through a network by your system(e.g. personal computer), when it detects abnormal internal temperature. Stop operating FPI when it appears then check surrounding temperature. 26. Cables Users must use cables attached with the FPI.

[Page 22](#) FDX3543RP CAUTION LABEL This label is a caution label to notify the user of the following point. "These contents are quite important for safety" Attachment position: Housing -22-...

[Page 23](#) FDX3543RP DEFINITION SYMBOL MARKS (1) CE MARKING OF CONFORMITY (2) SERIAL NUMBER (3) MANUFACTURER (4) DATE OF MANUFACTURE (5) AUTHORISED REPRESENTATIVE IN THE EUROPEAN COMMUNITY (6) PROTECTIVE EARTH (7) WARNING CAUTION (8) HANDLE WITH CARE (9) LOAD WEIGHT RESTRICTION (10) TYPE B

APPLIED PART...

[Page 24](#) FDX3543RP DIMENSIONAL OUTLINE (1) (Flat Panel Sensor Unit) Unit: mm -24-...

[Page 25](#) FDX3543RP DIMENSIONAL OUTLINE (2) (Interface Box) Unit: mm -25-...

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