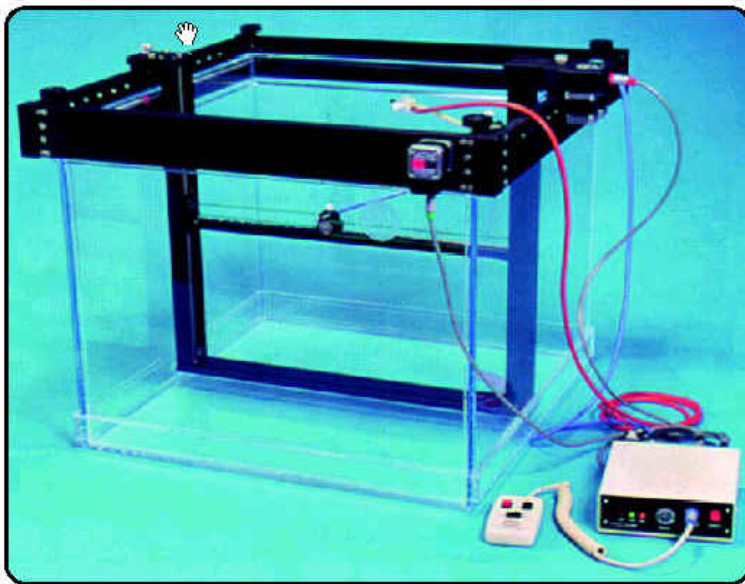




3-D Radiation Scanning System Model 7303



FEATURES

Made of aircraft anodized aluminum
Scanning area: 50 x 50 x 40 cm (deep)
Accuracy of positioning: 0.1 mm
Accuracy of measurement: 0.5%, except for radial motions
All axes driven by lead screw for accuracy
All scanner motions controlled by iBox (intelligent Box)
Use with Microsoft® Windows 95, 98, ME®, NT®

A serial cable is the only link with outside laptop or PC
Interfaces with Victoreen® THEBES® II
47 channel ion chamber array
New intuitive Windows® application

INTRODUCTION

The 3-D Radiation Scanning System is fast, accurate, simple, and easy to setup. It consists of two waterproof ion chambers and one lift table.

The electronics and firmware are all encapsulated in a compact iBox (intelligent Box) that controls scanner motions and data acquisition using embedded firmware featuring an Intel® microprocessor. The 3-D system is portable and comes in a specially designed case.

APPLICATIONS

In addition to the 3-D system, we offer two 2-D and a 1-D system with the same accuracy, simplicity, and rugged, trouble free use.

The Model 7302 2-D system can be assembled or disassembled in 15 seconds and it's horizontal arm is driven by lead screw for complete accuracy of positioning. Like the 3-D system, data acquisition and scanner motion are controlled by the iBox.

Fast and accurate Simple and easy to setup



1-D Radiation Scanning System



2-D Radiation Scanning System

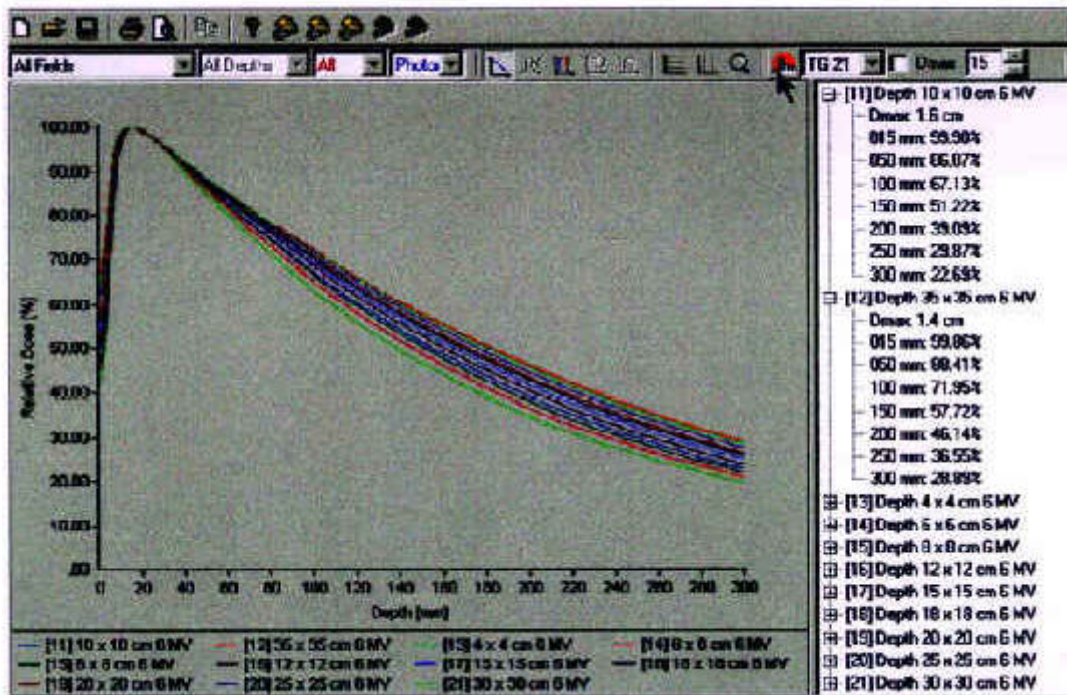
Using the 1-D system, a pendant and small power supply can control pre-programmed motions inside or outside of the treatment room with no electronic boxes or cables. Only a serial cable links the actuator either to the pendant or laptop or PC. In addition, the 1-D system complies with all the requirements of TG-51.



NEW INTUITIVE WINDOWS APPLICATION

Using Windows on a laptop or personal computer, it is easy to access the customized toolbar to allow changes to Protocols, Normalization and Profiles.

One of the program features is the use of the Scripts. Scripts allow you to preset all the field sizes, depths, and cross beams you want to scan.



PDD Analysis; PDD Normalization

PHOTONS - PERCENTAGE DEPTH DOSE (PDD) CURVES

A simple click of the mouse on the customized toolbar and alternatively it will change:

Protocols TG-21/TG-51 or any other protocol

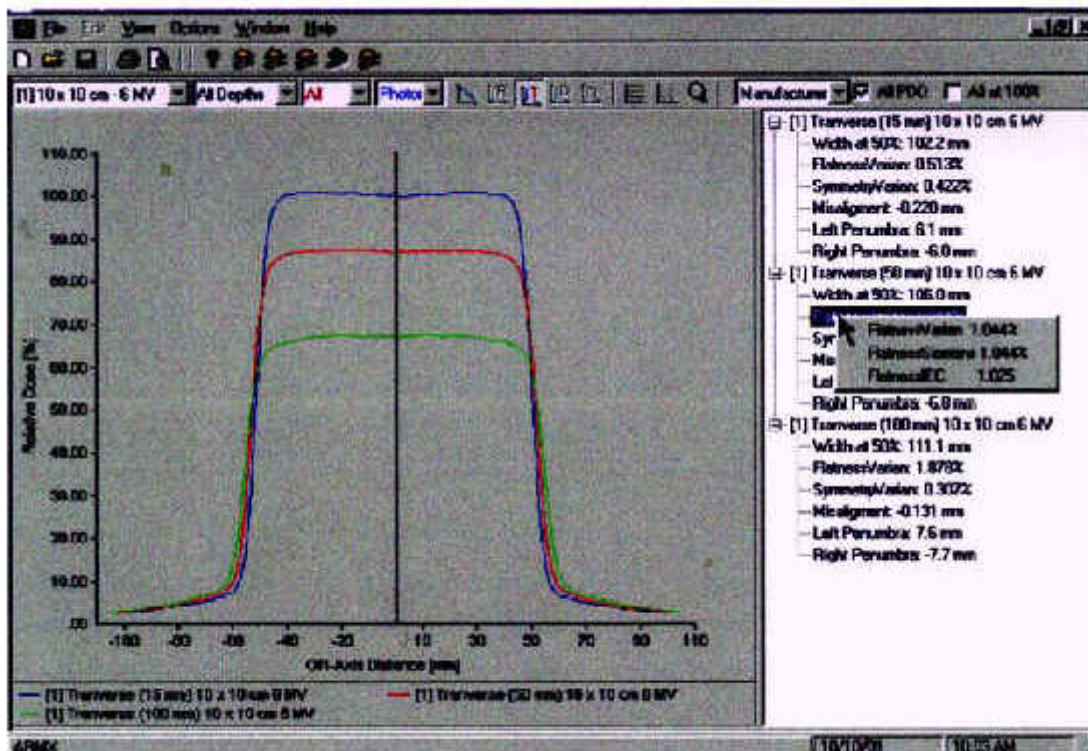
Normalization Dmax/any desired depth

Profiles PDD/Photons - Cross Profiles

Tables PDD/Tissue Max Ratio (TMR)

PDD Analysis; PDD Normalization

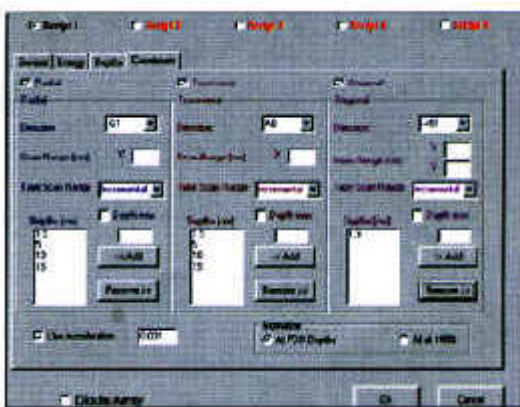
Flatness Photons and Electrons with three definitions



Flatness Photons and Electrons with three definitions

PHOTONS - CROSS BEAM PROFILES

The analysis provides with the field size width at 50%, Flatness, Symmetry, and Left and Right Penumbra. Click on Symmetry (or Flatness) and the program will show the values for different protocols. Single click on the mouse button and change Protocols, Normalization, and Profiles.



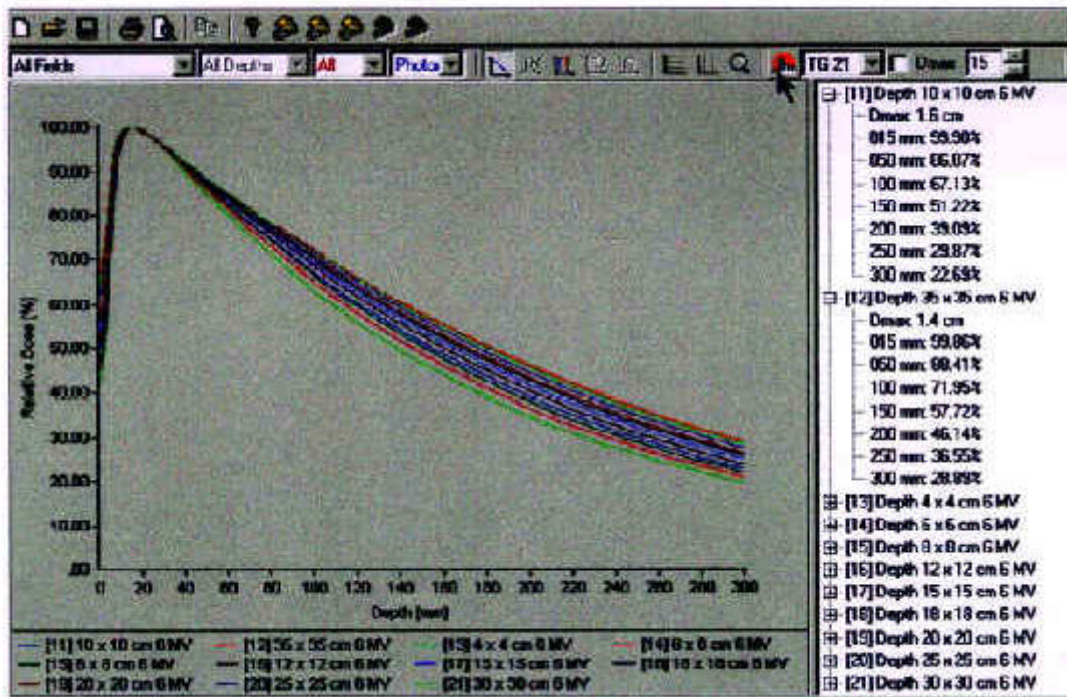
SCRIPTS

Scripts allow you to preset all the field sizes, depths and cross beams you want to scan. This screen shows the script for cross beams. You

may select the number of axes you want to scan and the program successively performs the scan of the selected axes.

ELECTRONS

A simple click of the mouse on the customized toolbar and alternatively it will change:



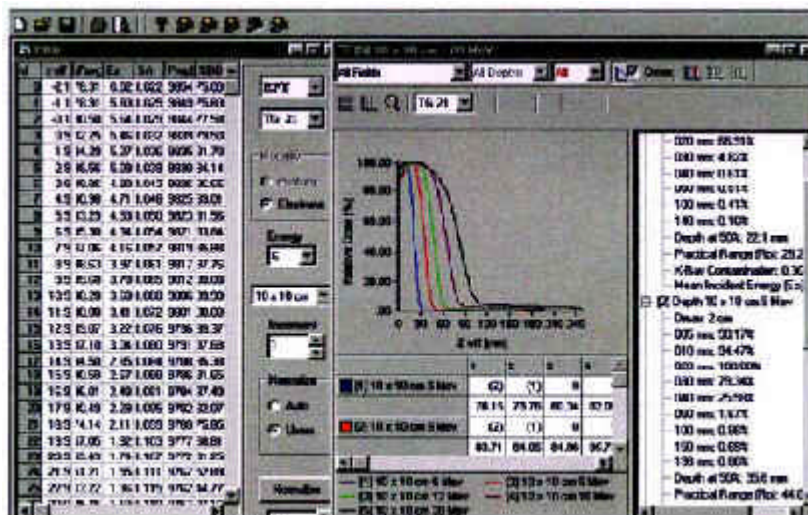
PDD Analysis; PDD Normalization

Depth curves Ionization/PDD

Protocols TG-21/TG-51 or any other protocol

Normalization Dmax/any desired depth

The 3-D system programs include all major protocols: TG-21 and TG-51

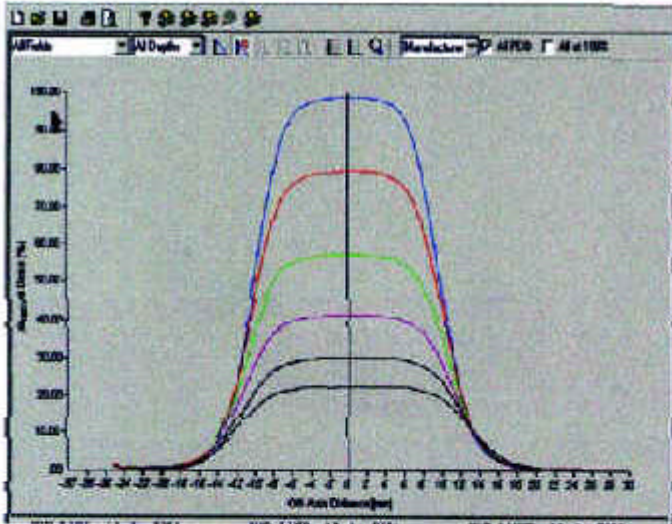


Electrons: this caption shows the ionization curves of the electrons

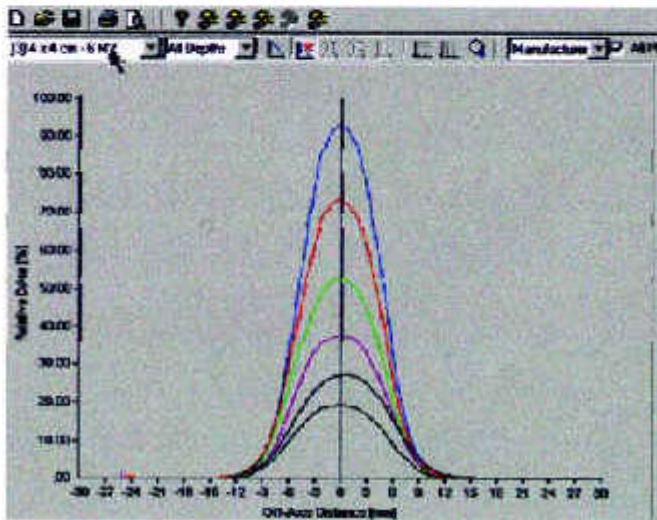
Profiles PDD/Photons - Cross Profiles

Tables EFT (Electron Full Table/PDD). The EFT shows Physical depth, Effective depth, Ionization values, Mean Energy, P-replacement, and PDD values

Electrons: this caption shows the ionization curves of the electrons



Cross Profiles: field size (cm) 2x1



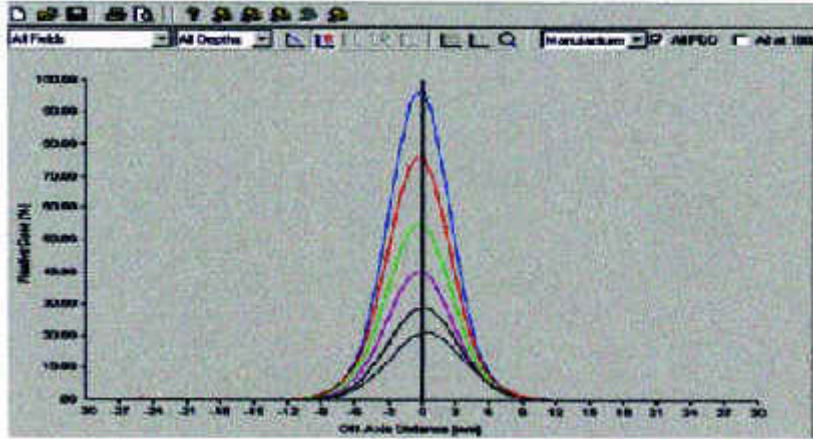
Cross Profiles: field size (cm) 1x2

Cross Profiles: field size (cm) 2x1

Cross Profiles: field size (cm) 1x2

2-D MINI FOR RADIO-SURGERY AND TOMO-THERAPY

Depths (cm): 1.5, 5, 10, 15, 20, 25



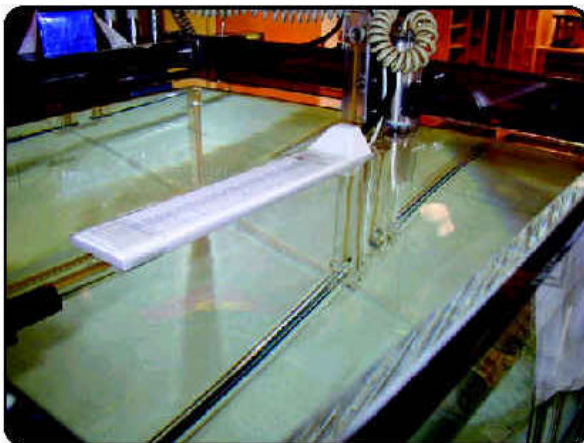
Cross Profiles: field size (cm) 0.5 x 1

Depths (cm): 1.5, 5, 10, 15, 20, 25
Cross Profiles: field size (cm) 0.5 x 1

In the normal scanning process, the number of samples collected per each step is approximately 9,000. Thanks to the speed of the firmware and microprocessor, this sample size can be multiplied by a factor three or larger. This can be applied to scan a very small field size as shown in the example above. Accurate, clean profiles are obtained without any smoothing or other manipulations.

INTERFACES

Interfaces with Victoreen THEBES II 47 channel ion chamber array via pull-down menu in scanner software for 3-D Model 7303 and 2-D Model 7302 Radiation Scanning Systems.



THEBES II waterproof ion chamber array in water tank

THEBES II waterproof ion chamber array in water tank CASE WITH THE 3-D SYSTEM

In supplying scanners, our priorities are accuracy, simplicity, and also portability. Including our 3-D system, shown here inside of a specially designed case.



SPECIFICATIONS

2-D MINI MODEL 7302M (RADIO-SURGERY AND TOMO-THERAPY)

Housing Material Machined aircraft aluminum

Scanning Area 25 x 25 cm

Horizontal Arm Driven by lead screw for accuracy

Accuracy of Positioning 0.1 mm

Accuracy of Measurement 0.5%

Leveling Levels the scanner arms, not the water tank

Portability The scanner assembles/disassembles in 15 seconds

Perpendicularity Special coupling mechanism between the horizontal and vertical arms, keeps perfect perpendicularity

Interface All major Treatment Planning Systems

System Includes 2 waterproof ion chambers

1-D MODEL 7301

Standard Acrylic Tank 30 x 30 x 30 cm

Accuracy of Positioning 1/20 mm

Pendant With digital display

Firmware Embedded in the actuator, controls the ion chamber position from steps of 0.1 mm to any desired step length

Maximum Measuring Depth 20.4 cm

Weight (including the acrylic tank) 15 lb

Options Operated from the PC with full TG-51 protocol. Interface with electrometer

3-D MODEL 7303

Housing Material Machined aircraft aluminum

Color Black

Scanning Area 50 x 50 x 40 cm (deep)

Axes All driven by lead screw for accuracy

Accuracy of Positioning 0.1 mm

Accuracy of Measurement 0.5%, except for radial motion

Leveling Levels the scanner, not the water tank

Portability The scanner assembles/disassembles in approximately 5 minutes

Perpendicularity $\pm 0.15^\circ$

Interface All major Treatment Planning Systems

Software All conventional protocols, TG-21 and TG-51 with complete analysis of parameters for photons and electrons. Tables of Percentage Depth Dose (PDD), Tissue Max Ratio (TMR), and Tissue Phantom Ratio (TPR). Written in Windows 95, 98, and NT. Files are stored in ASCII format. Interface with all major TP

System Includes Two 0.125 waterproof ion chambers and 1 lift table

2-D MODEL 7302

Housing Material Machined aircraft aluminum

Scanning Area 50 x 40 cm

Horizontal Arm Driven by lead screw for accuracy

Accuracy of Positioning 0.1 mm

Accuracy of Measurement 0.5%

Leveling Levels the scanner arms, not the water tank

Portability The scanner assembles/disassembles in 15 seconds

Perpendicularity Special coupling mechanism between the horizontal and vertical arms, keeps perfect perpendicularity

Interface All major Treatment Planning Systems

System Includes 2 waterproof ion chambers

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