

# PROFILER Solutions

Advanced two dimensional array solutions for quick and precise measurement of radiotherapy beams

## PROFILER 2™ The Water Tank Alternative



## The PROFILER Advantage

### Sets up in Minutes and Easy to Use

- ›› Portable and lightweight
- ›› Single power/data cable
- ›› No pre-irradiation required
- ›› No warm-up required

### User Calibration

- ›› Sun Nuclear's proven and patented process
- ›› No need to send back to manufacturer

### Key Benefits

- ›› Quick and precise beam QA measurement
- ›› Full field measurement instead of a single point
  - > Identify startup/time dependent anomalies
- ›› Sets up in minutes versus hours for a water tank
- ›› Very low signal to noise (0.15%)
- ›› One measurement checks multiple parameters
  - > Includes flatness, symmetry, field Size, beam center, penumbra width, Light: Radiation coincidence
- ›› Advanced applications
  - > Includes beam constancy, steering, diagnostics, collimator and rotational sag QA
- ›› Accepted and proven for clinical and factory settings

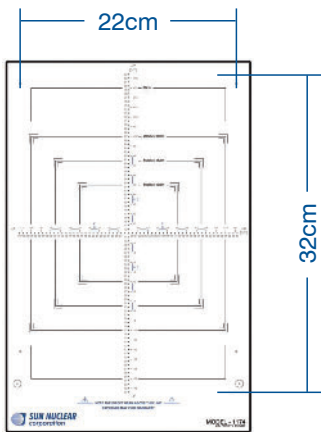
## IC PROFILER™ The Waterless Water Tank



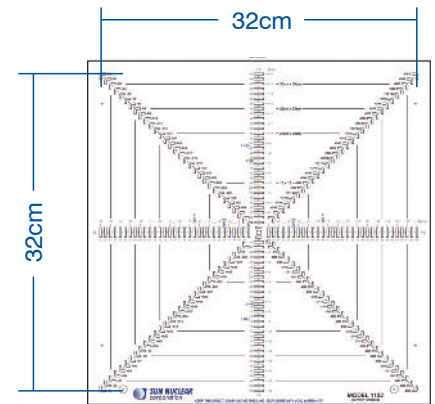
Ask about SRS PROFILER  
for stereotactic use



## Hardware



Diodes	<b>Detector type</b>	Ion Chambers
139	<b>Detector quantity</b>	251
0.8mm	<b>Detector width</b>	2.9mm
22.0 x 32.0cm	<b>Field size</b>	32.0 x 32.0cm
X, Y	<b>Detector axes</b>	X, Y, diagonals
4mm	<b>Detector spacing</b>	5mm



## PROFILER 2

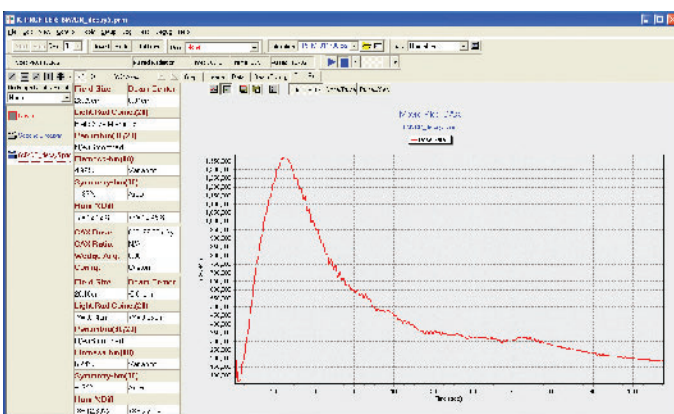
- SunPoint™ Diode Detectors have the highest sensitivity, reliability and lowest available volume of any dosimetric measurement system, ensuring accurate beam measurement
- 1.0cm of integrated Virtual Water™ buildup
- IMF™ holds PROFILER 2 at 100cm SDD
  - Rotational delivery measurements are possible at any gantry angle while keeping PROFILER 2 fixed at isocenter

## IC PROFILER

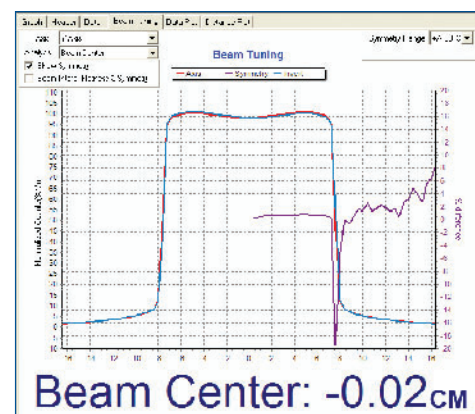
- Unique curved ion chamber design maximizes signal and minimizes volume averaging
- IC PROFILER accuracy is within 0.5% of a water tank
- 45cm length diagonals
- 40 x 40cm field measurement at 75cm SDD
- GMF™ for IC PROFILER
  - Rotational delivery measurements are possible at any gantry angle while keeping IC PROFILER fixed at isocenter

## PROFILER Software

- Multiple real time parameter calculations
- Profile comparison, subtraction, overlay, and more
- All relevant international and OEM calculation protocols
- Beam tuning and data plotting interface
- Real-time movie mode measurement and playback
- Import water tank data and compare to PROFILER files
- Developed in cooperation with market leading radiotherapy linac manufacturers
- Report generation with output to PDF®



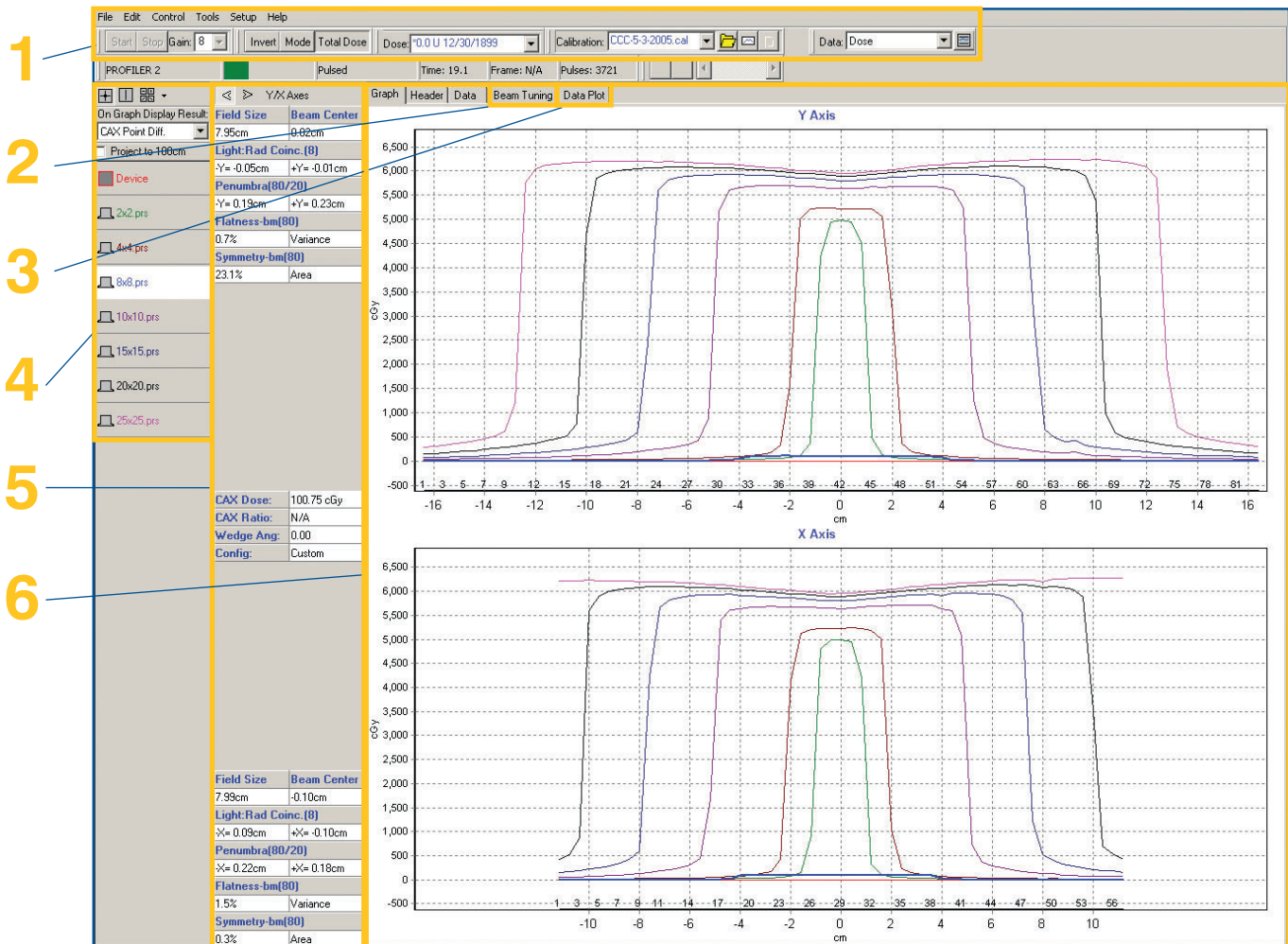
Measure beam stability with time or selected beam-on stabilization: Dose Rate, Dose/Pulse, Pulse/Sec, Point Symmetry, and more!



Easy viewing of real-time beam changes of selected parameters

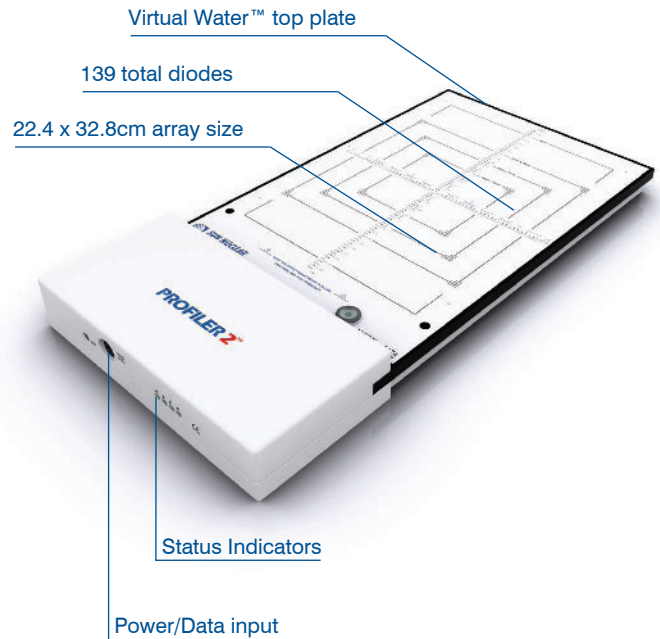
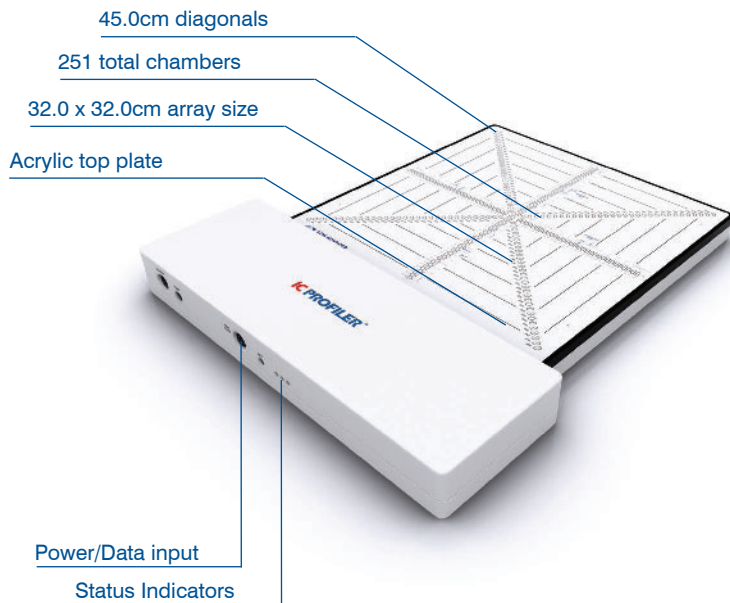
## Analysis Parameters

- » Flatness
- » Symmetry
- » Field size
- » Light: Radiation coincidence
- » Penumbra
- » Dose Rate
- » Beam Center
- » Output
- » Beam stabilization time (movie mode)
- » Electron energy verification (with accessory wedge)
- » Photon wedge angle calculation
- » Pulse counting
- » Dose/Pulse
- » Pulse/Second



- 1 Main toolbar:**  
Selections include time dependence, average rate, total dose, instantaneous rate, dose & array calibrations, data type, and axes to display
- 2 Beam tuning:**  
Make beam adjustments while observing the resulting changes on the display in real time
- 3 Data plotting:**  
View the time dependence of up to two beam analysis parameters over the duration of a measurement
- 4 Legend panel:**  
Up to 15 files can be open simultaneously, files are color coded to match profiles and analysis results
- 5 On-screen analysis:**  
Display calculated analysis results while collecting data or displaying saved files
- 6 Profile display:**  
Change views to display profiles, header information, detector dataset, beam tuning or data plot

## Features and Specifications



### IC PROFILER

### PROFILER 2

Detector type:	Parallel plate ion chamber	SunPoint Diode Detectors
Detector quantity:	251 Total: X Axis: 63 / Y Axis: 65 -Diagonal: 63 / +Diagonal: 63	139 Total: X Axis: 57 Y Axis: 83
Detector spacing (mm):	5.0	4.0
Detector width (mm):	2.9	0.8
Active detector volume(cm <sup>3</sup> ):	0.046	0.000019
Detector sensitivity (nC/Gy):	1.4	32.0
Signal to Noise <sup>1</sup> :	0.15% with 125ms update and 400 MU/min	0.15% with 125ms update and 400 MU/min
Sampling frequency (ms):	125	100.0
Detector stability:	0.5%/kGy at 6MV	0.5%/kGy at 6MV
Dose rate limit (Gy/min):	100	56.0
Field size (cm):	32.0 x 32.0 (45cm diagonals)	22.4 x 32.8
Inherent buildup (g/cm <sup>2</sup> ):	0.9	1.0
Top plate construction:	PMMA (Acrylic)	Virtual Water™
Inherent backscatter (g/cm <sup>2</sup> ):	2.3	2.0
Radiation measured:	<ul style="list-style-type: none"> <li>Electrons: 4 MeV to 25MeV</li> <li>Photons: Co-60 to 25MV</li> </ul>	<ul style="list-style-type: none"> <li>Electrons: 4 MeV to 25 MeV</li> <li>Photons: Co-60 to 25 MV</li> </ul>
Operating system:	Windows 2000, XP 32-bit, or Vista 32-bit	Windows 2000, XP 32-bit, or Vista 32-bit
Dimensions (cm) / Weight (kg):	5.0 x 42.0 x 51.0 / 7.0	6.0 x 25.6 x 52.0 / 5.0
Number of connection cables:	Single power/data cable	Single power/data cable