

PROFILER™ Solutions

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

U.S. Patent No. 6,125,335

PROFILER™ 2

The Water Tank Alternative



IC PROFILER™

The Waterless Water Tank



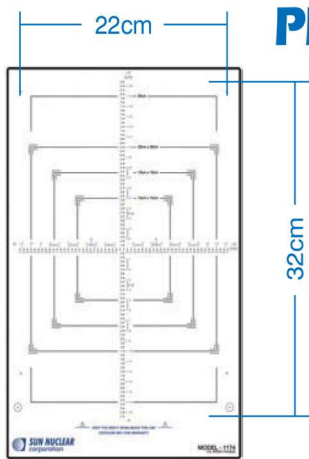
Benefits

- > 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
- > One measurement checks multiple parameters:
 - Includes flatness, symmetry, field size, beam center, penumbra width, light-radiation field coincidence
- > Advanced applications:
 - Includes beam constancy, steering, diagnostics, collimator and rotational sag QA
 - Electron energy verification
 - Photon energy verification (IC PROFILER)
- > Accepted and proven for clinical and factory settings:
 - Used in Varian, Elekta and Accuray manufacturing facilities
- > Import water tank data including 3D SCANNER™
- > Portable and lightweight
- > Single power/data cable
- > No pre-irradiation required for routine measurement
- > No warm-up required
- > Sun Nuclear's proven and patented user calibration:
 - No need to send back to manufacturer
- > Isocenter (IMF) and Gantry Mount Fixtures (GMF) available
- > Supports FFF beams

Ask about SRS PROFILER™ for stereotactic use



Features - Hardware



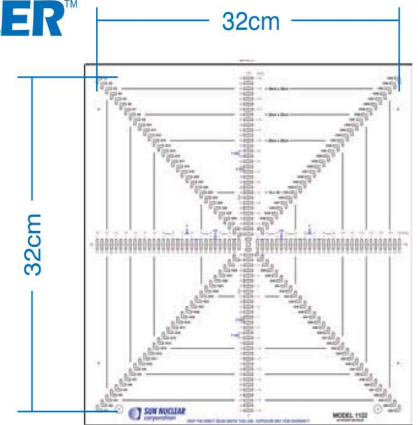
PROFILER™ 2

Diodes
139
0.8mm
22.0 x 32.0cm
X, Y
4mm

Detector type
Detector quantity
Detector width
Field size
Detector axes
Detector spacing

Ion Chambers
251
2.9mm
32.0 x 32.0cm
X, Y, diagonals
5mm

IC PROFILER™



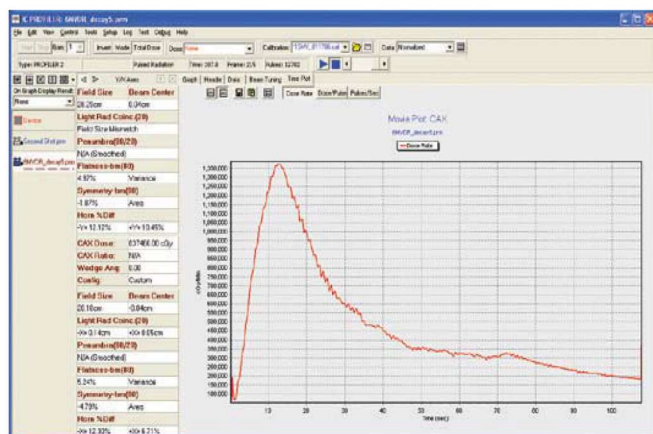
- SunPoint® Diode Detectors have the highest sensitivity, reliability and lowest available volume of any dosimetric measurement system, ensuring accurate beam measurement
- 1.0cm of integrated Virtual Water™ buildup
- IMF™ holds PROFILER 2 at 100cm SDD:
 - Rotational delivery measurements are possible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

- Unique curved ion chambers maximize 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

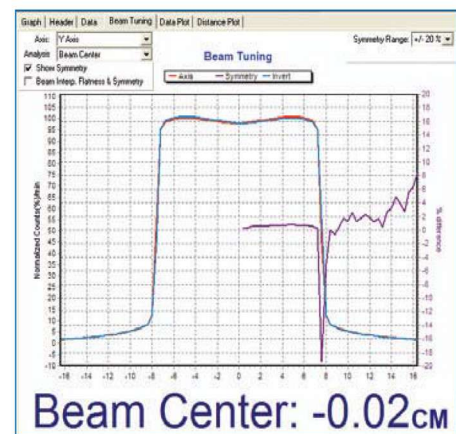
Features - Software

- 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

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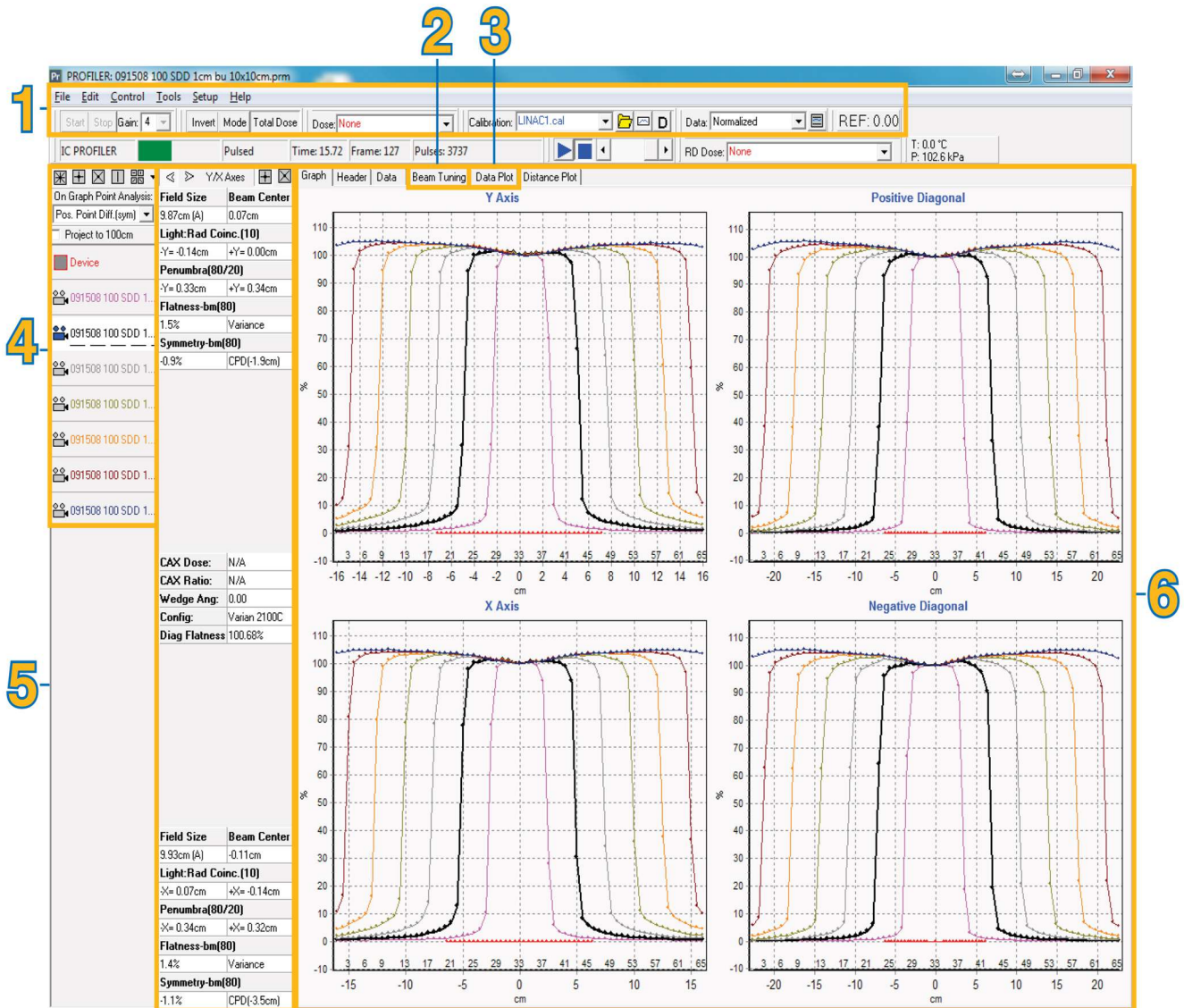
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Analysis Parameters

- > Flatness
- > Symmetry
- > Field size
- > Light-radiation field 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 tab:

Make beam adjustments while observing the resulting changes on the display in real time

3 Data plotting tab:

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

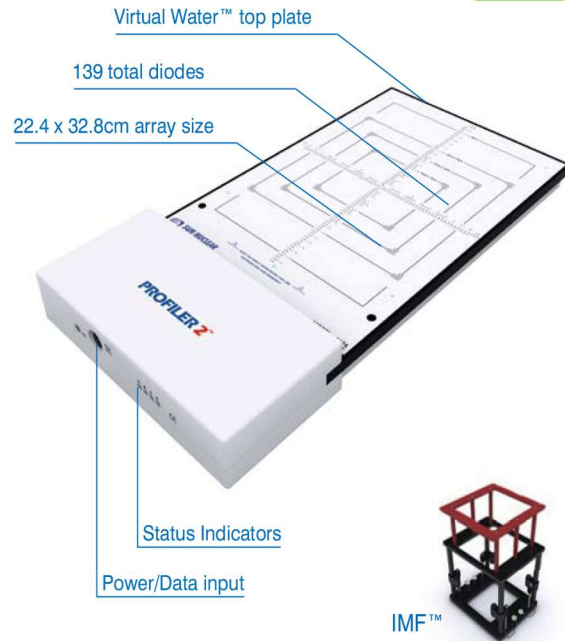
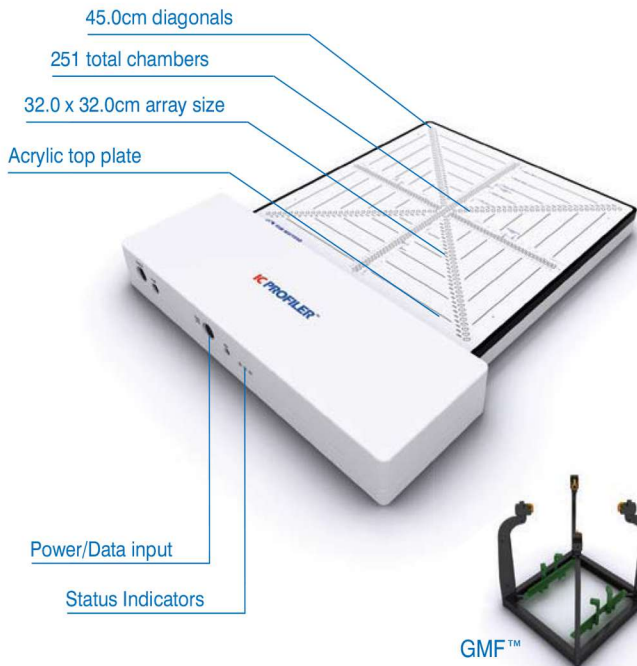
5 On-screen analysis:

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



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 ³):	0.046	0.000019
Detector sensitivity (nC/Gy):	1.4	32.0
Signal to Noise ¹ :	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 ²):	0.9	1.0
Top plate construction:	PMMA (Acrylic)	Virtual Water™
Inherent backscatter (g/cm ²):	2.3	2.0
Radiation measured:	<ul style="list-style-type: none"> Electrons: 4 MeV to 25MeV Photons: Co-60 to 25MV 	<ul style="list-style-type: none"> Electrons: 4 MeV to 25 MeV Photons: Co-60 to 25 MV
Operating system:	Windows 2000, XP, Vista, Windows 7 (32-64bit)	Windows 2000, XP, Vista, Windows 7 (32-64bit)
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