

Proven to Perform, Efficiently

Thousands of clinics use it. Linac manufacturers depend on it, too. IC PROFILER™ provides powerful, real-time beam performance data for linac acceptance, routine QA and more.

Water Tank Equivalent

IC PROFILER is the only 2D array proven to be water tank equivalent – yielding highly accurate results and far more efficient workflows. A single, multi-purpose measurement means more beam changes can be caught before they impact uptime, or patient safety.

Monthly & Annual QA

- A single measurement provides real-time beam performance data, including:
 - Constancy checks for output and beam quality
 - Flatness, symmetry, field size and penumbra width
 - Real-time, full-field beam tuning

The Water Tank Alternative

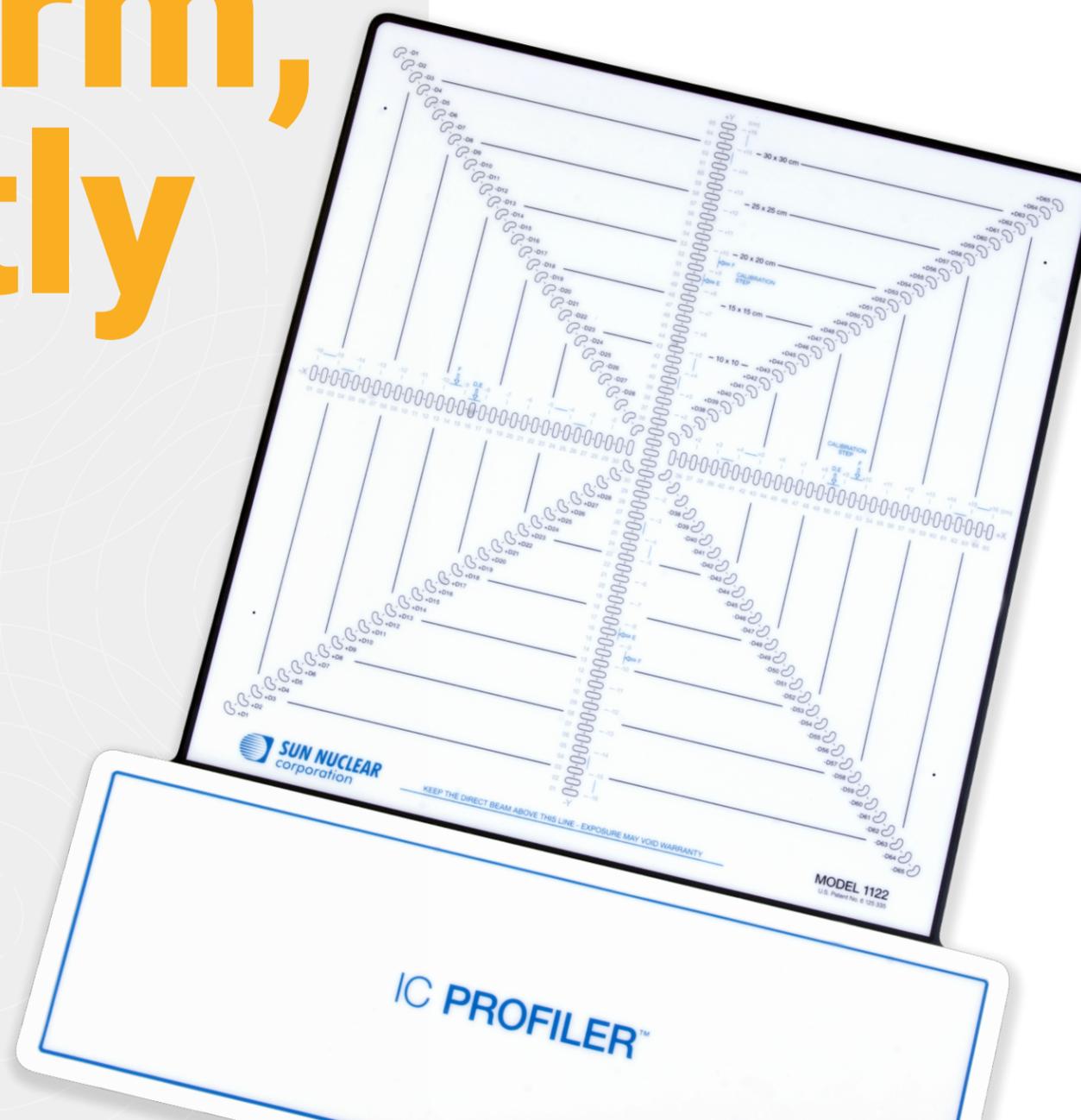
- Accurate within 0.5% to a water tank
- Sets up in minutes, with no warm-up or pre-irradiation needed
- Linac acceptance, routine QA, and more

SunCHECK Integration

- Direct connectivity with SunCHECK™ Platform for efficient Monthly and Annual QA

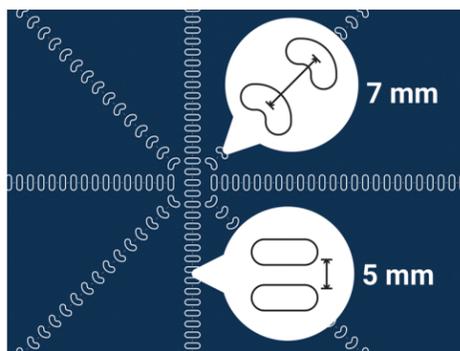
MR Ready

- MR-compatible version available



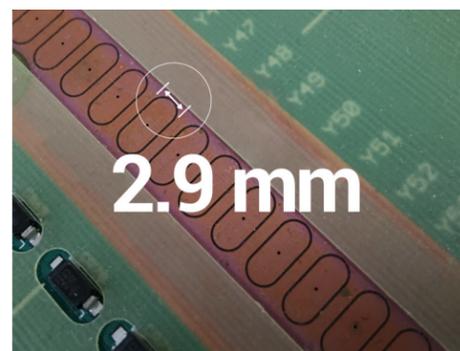
Monthly QA in Minutes. Annual QA with Ease.

With accuracy within 0.5%, IC PROFILER works for most applications where a water tank is used. It sets up in minutes, not hours, and requires no warm-up or pre-irradiation. Providing fast full-field measurements, the IC PROFILER simultaneously measures X, Y and both diagonal axes, and analyzes beam start-up characteristics for anomalies. Power Data Interface (PDI) is managed through a single-cable architecture.



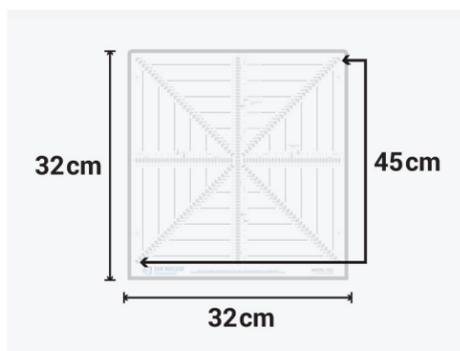
Unique Ion Chamber Design

Uniquely shaped ion chambers with 5 mm spacing on primary axes and 7 mm on diagonals maximize signal and minimize detector density and volume averaging.



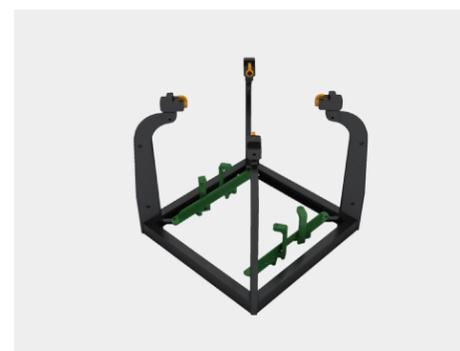
Detector Resolution

Ion chamber volume resolution of 2.9 mm along the field gradient minimizes dose volume averaging.



Field Size

The array is 32cm x 32cm (primary axes), with 45cm diagonal length. A 40cm x 40cm field is possible with the SSD at 75cm.



Gantry Mounting Fixture

GMF™ supports annual gantry angle measurements – beam quality, constancy, and off-axis.

Accelerated Beam Energy Verification

Performing beam quality verification with an ion chamber in (solid) water is time-consuming and laborious, requiring multiple trips into the vault for each energy. As an alternative, an attenuating object of varying thickness, such as a wedge, can be placed into the field, and variation in beam quality can then be deduced from attenuation changes. A vital accessory, our **Quad Wedge Plates** were designed with linac manufacturing engineers to provide:

Easy, Reproducible Setup

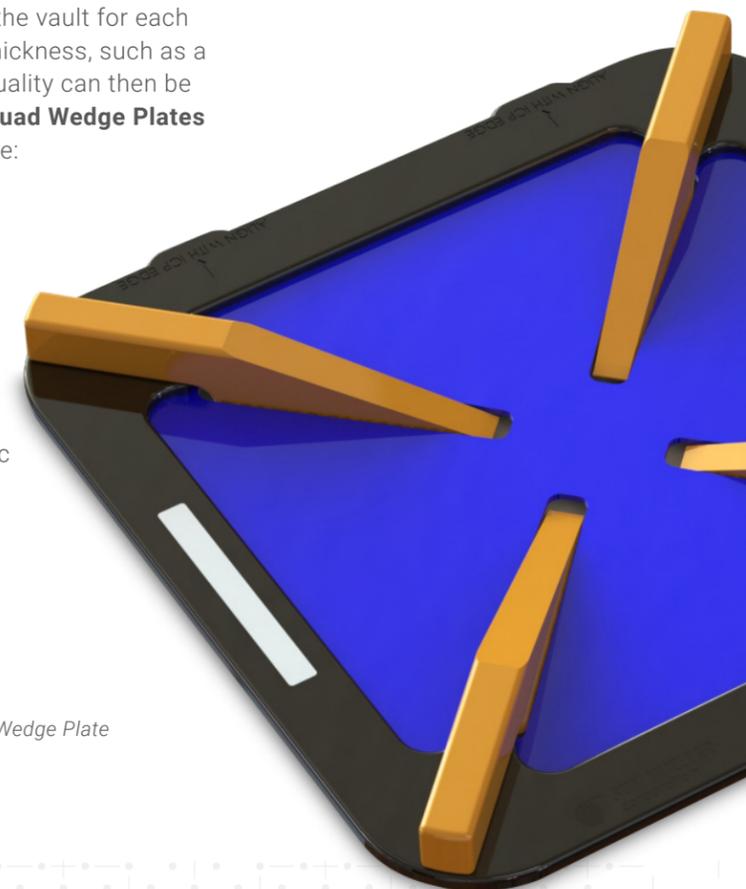
- Align flush with IC PROFILER edges for easy positioning
- Supports linacs from both Elekta and Varian Medical Systems®

Replace Solid Water for Accelerated Measuring

- ~15 minutes for 5 beam measurements (8 energies)
- Only 1 trip into the treatment room needed
- Water equivalent results designed for installation of a new linac

Simplified Beam Energy Verification

- Supports a wide range of photon and electron energies, with easy-to-understand results in the PROFILER software



Photon Quad Wedge Plate



“(IC PROFILER with Quad Wedges) reduced overall measurement time... for photons and electrons by 50% and 66%, respectively.”

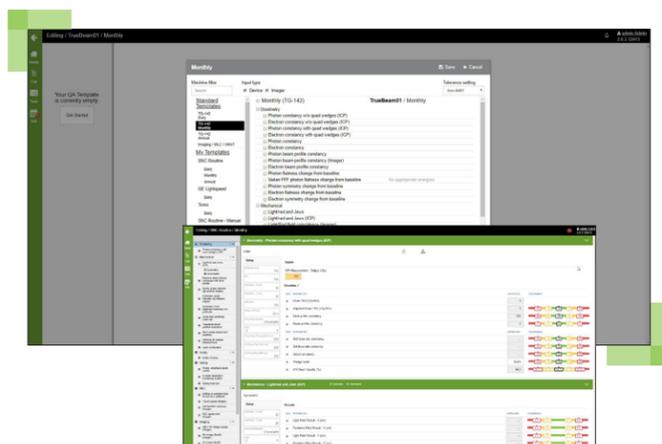
Clinical Experience Implementing an Ion Chamber Array for Monthly Beam Constancy Versus Ion Chamber in Water D. Barbee, et. al, NYU Langone Health, New York, NY, USA; AAPM 2020

Integration with the SunCHECK™ Platform

The SunCHECK Platform allows real-time control of the IC PROFILER, without having to launch or maintain a separate application. Automated data collection and beam measurements help streamline manual workflows for monthly and annual QA.

Smarter Monthly QA

Directly connect your IC PROFILER and take advantage of efficient TG-142 templates for easy Monthly (and Annual) QA. Simply deliver the beam, then accept or reject the real-time results recorded by SunCHECK Machine. The ability to store and retrieve data within the SunCHECK Machine software further simplifies this process and eases meeting TG-142 requirements and accreditation.



“I can do three times as much work in half the time with SunCHECK Machine. The IC PROFILER integration is amazing. You put on a Quad Wedge and you’ve done four tests in one exposure – output, beam energy, profile constancy and MU.”

Curtis Baker, M.S., DABR,
Hamilton Medical Center

Specifications

IC PROFILER Specifications

Detector Type	Parallel plate Ion Chamber
Detector Quantity	251 total; X Axis: 63; Y Axis: 65; -Diagonal: 63; +Diagonal: 63
Detector Spacing (mm)	5.0
Array Size (cm)	32.0 x 32.0
Detector Volume (cm ³)	0.046
Detector Sensitivity (pC/cGy)	14.4
Inherent Buildup (g/cm ²)	0.94
Inherent Backscatter (g/cm ²)	2.3
Phantom Material	PMMA (Acrylic) / PC
Weight (kg)	8.8

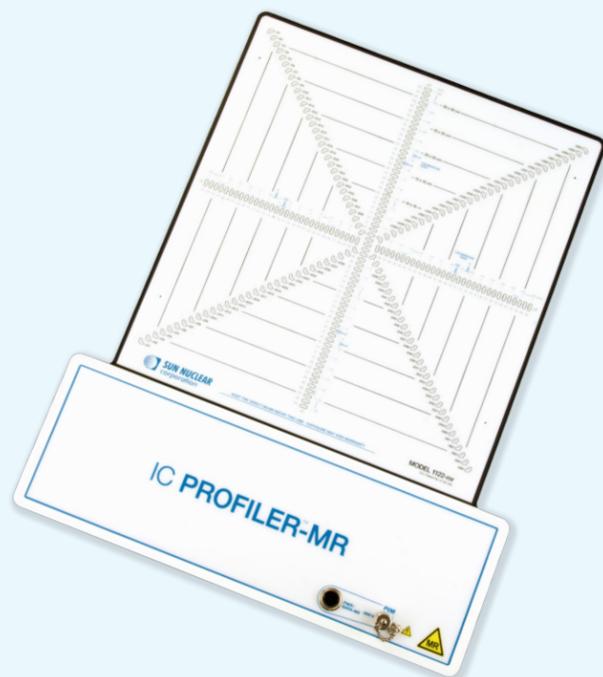
Quad Wedge Plate Specifications

Electron Energy Quad Wedge Plate	Aluminum-based design; Suitable for analysis of energies from 4-22 MeV
Photon Energy Quad Wedge Plate	Copper-based design; Suitable for analysis of energies from 6-18 MV
Equivalent Depth Range (cm)	0.9-8.1 (Electron Energy Wedge Plate) 0.9-23.9 (Photon Energy Wedge Plate)



“Use of the ICA (IC PROFILER) greatly speeds up the steering process because of its real-time feedback and reduces effort by eliminating the need to setup a 3D water scanning tank.”

Quantification of Beam Steering with an Ionization Chamber Array
S. Gao, et al, Journal of Applied Clinical Medical Physics, 2018



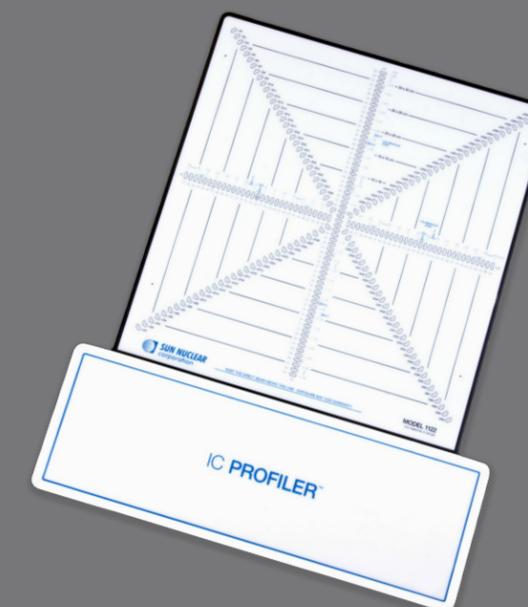
MR-Ready



The IC PROFILER-MR and associated cabling, stand, and included accessories* are MR-compliant for field strengths up to 1.5 T. Used by Elekta and ViewRay development and engineering teams, IC PROFILER-MR enables real-time, tankless beam scanning for any department practicing MRgRT.

Treatment system manufacturers and clinical users worldwide rely on IC PROFILER-MR as a cost-effective solution for easy, comprehensive Monthly and Annual QA.

* Does not include Quad Wedge Plates





**Sun Nuclear
Headquarters (US)**

Phone
+1 (321) 259-6862

Address
3275 Suntree Blvd,
Melbourne, FL 32940

**Sun Nuclear
GmbH**

Phone
+49 6102-50495-00

Address
Gutenbergring 67 A 22848
Norderstedt, Germany

**Sun Nuclear
Wisconsin (US)**

Phone
+1 (800) 426-6391

Address
7600 Discovery Drive,
Middleton, WI 53562

**SunServices™
Center - EMEA**

Phone
+31 20 399 90 41

Address
Verlengde Poolseweg 36
4818 CL Breda, The Netherlands

Varian Medical Systems® is a registered trademark, and Varian™ and Truebeam™ are trademarks, of Varian Medical Systems, Inc. Sun Nuclear Corporation is not affiliated with or sponsored by Varian Medical Systems, Inc.

 Patient Safety
Starts Here

