SYSTÈMES DE MESURE AQ

peo MEDICAL

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Partner Bertin Technologies

Bertin Technologies est un fournisseur mondial de solutions avancées de détection des rayonnements et de surveillance de l'environnement, spécialisé dans les moniteurs portatifs, les dosimètres électroniques personnels, les systèmes de surveillance de l'environnement et les technologies de gestion des déchets et du recyclage. Ses instruments sont conçus pour répondre aux exigences rigoureuses des installations nucléaires, des équipes d'intervention d'urgence et des agences environnementales.

Product offering

ZEUS: MRGRT MOTION MANAGEMENT QA PHANTOM (Model 008Z) – CIRS

ZEUS: MRGRT MOTION MANAGEMENT QA PHANTOM (Model 008Z) – CIRS

IMAGE ACQUISITION • TREATMENT PLANNING • DOSE DELIVERY

The integration of MR imaging in radiation therapy facilitates real-time motion management. The CIRS Zeus MRgRT Motion Management QA phantom is designed to address such needs. Zeus is MR Safe due to the use of piezoelectric motors and non-ferromagnetic materials. The two piezoelectric motors move a cylindrical insert, which contains a tracking target, through a gel/liquid fillable body by rotating it inde-pendently from the motion in the Inferior-Superior direction.

The moving insert contains an organic shaped target (tumor) filled with gel, which is surrounded by the same background gel used to fill the body. The body represents a heterogenous background due to simulated lungs, liver, kidney, and spine. The simulated organs are anatomical in shape and have a life-like spatial relationship. They are filled with gels that provide contrast in CT and MR versus the background gel, which fills the void between the organs. Be-sides imaging, all organs, except for the lungs, offer ion chamber dosimetry cavities, which allow for completing an entire QA process; from imaging to planning to verification of dose delivered.

ZEUS

Zeus is designed as a single unit with a piezo actuator fixed permanently to a base plate on which the MRI body “snaps”. This allows for quick setup, removal, filling, and storage purposes. The phantom’s base plate has machined slots on the bottom, which allow for the use of indexing bars for precise and repeatable/reproducible phantom-MRI (MRI-Linac) alignment.

CIRS Motion Control software drives this phantom as well as the other phantoms from the CIRS dynamic family. In addition to multiple built-in motion profiles, which are more appropriate for commissioning and routine QA, the software allows for the import of complex patient-specific respiratory waveforms. The user can edit the waveforms for amplitude, sample rate, cycle time, phase shift, and baseline position. It also allows the setup of independently controllable waveforms for linear and rotation motion of the insert. Zeus’ can gate Inferior-Superior motion of the insert/moving target based on amplitude to allow verification of beam latency. The motion controller box provides an interface (BNC physical input type) for the Beam-on Beam-off signal, which is read by the Motion Control software to calculate the Beam Latency specific to hybrid MRI-Linac systems.

Motion Management QA Phantom Features:

- Piezoelectric motors, non-ferromagnetic materials => MR safe
- Allows for positioning within magnet bore due to piezoelectric motors
- Easy setup, removal, alignment, positioning
- Organic shaped Organs at Risk and moving target
- Can be imaged in MRI, CT, PET and hybrid systems
- Ion chamber dosimetry in Liver, Kidney, Spine and moving target

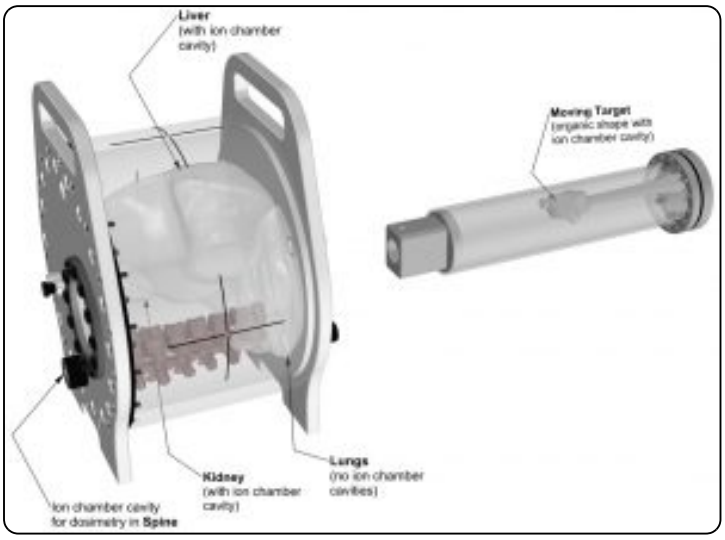
- 3D tissue equivalent Spine for bone landmark
- Two independently programmable motions for the moving target
- Import, edit, and save patient specific breathing waveforms in addition to built-in QA waveforms
- Calculate beam latency from beam-on, beam-off signal

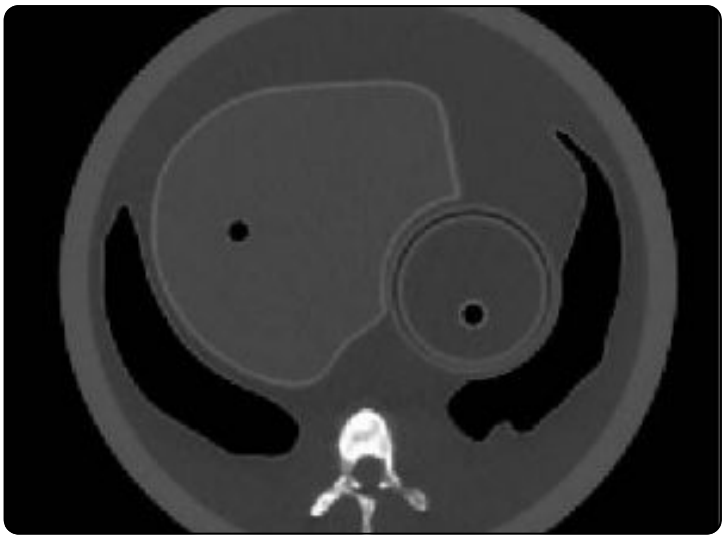
NOTE: *This product or an optional accessory of this product requires a CIRS dosimetry cavity code before an order can be placed. Please refer to the Dosimetry Cavity Codes document to identify the CIRS code for the probe you intend to use with this product.*

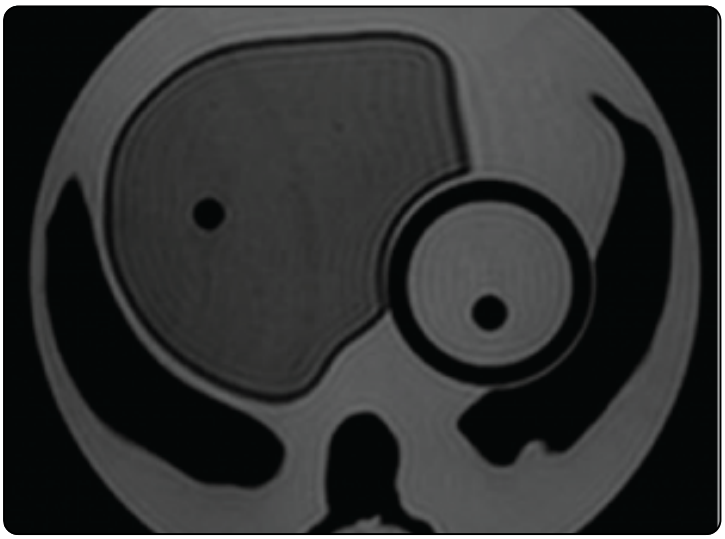
If you want to read more about this phantom, read this PEO article.

https://youtu.be/JHoB828shRQ

SCAN TO VIEW VIDEO







References

Snyder, Jeffrey E; St-Aubin, Joël; Yaddanapudi, Sridhar; Boczkowski, Amanda; Dunkerley, David AP; Graves, Stephen A; Hyer, Daniel E; 'Commissioning of a 1.5 T Elekta Unity MR-linac: A single institution experience'. *Journal of Applied Clinical Medical Physics*. 2020; 21 (7): 160-172. View

Schneider, Sergej 'Inter-and Intrafraction Motion Management for MR guided Proton Therapy of Pancreatic Carcinoma'. 2020; View

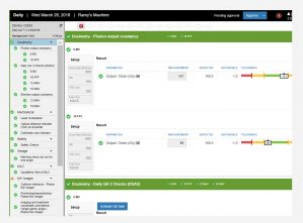
Lamb JM, Ginn JS, O'connell DP, et al. Dosimetric validation of a magnetic resonance image gated radiotherapy system using a motion phantom and radiochromic film. J Appl Clin Med Phys. 2017;18(3):163-169. View

Partner Sun Nuclear Corporation

Sun Nuclear est l’un des principaux fournisseurs de solutions complètes de gestion de la qualité pour la radiothérapie et l’imagerie diagnostique. Son portefeuille comprend des systèmes de positionnement, des outils de dosimétrie, des fantômes d’assurance qualité, des détecteurs, des dispositifs de surveillance du débit de dose, des logiciels d’analyse et des fantômes de formation. Ces solutions sont conçues pour aider les professionnels de la santé à assurer des soins précis, sûrs et efficaces aux patients.

Product offering

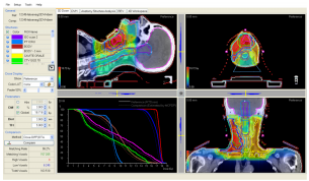
SunCHECK™ Machine – Sun Nuclear



SunCHECK™ Platform – Sun Nuclear

SunCHECK™

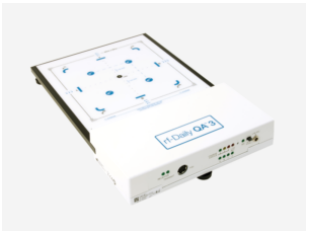
3DVH Software for Patient QA – Sun Nuclear



MapCHECK®3 – Sun Nuclear

SRS MapCHECK – SunNuclear

Daily QA 3 – Sun Nuclear

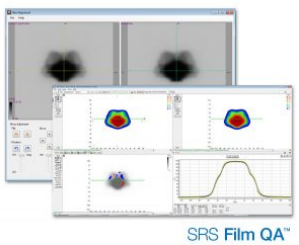


EDGE Detector – Sun Nuclear

SunCHECK™ Patient

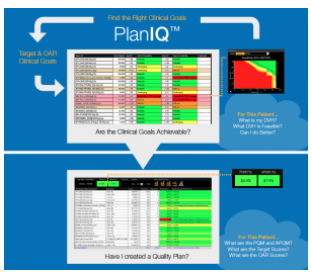
DoseCHECK – Sun Nuclear

SRS Film QA Software – Sun Nuclear



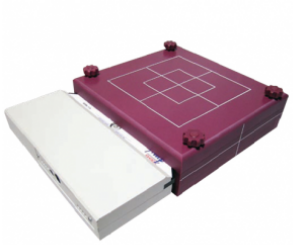
SNC Machine Software – Sun Nuclear

PlanIQ Software – Sun Nuclear



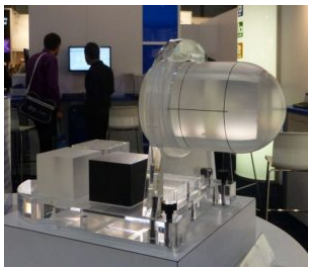
Respiratory MotionSim (RMS) – Sun Nuclear

MapPHAN – Sun Nuclear

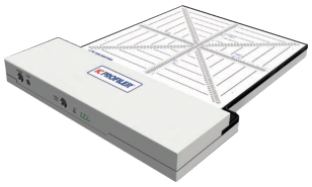


ArcCHECK 4D – Sun Nuclear

StereoPHAN Phantom – Sun Nuclear



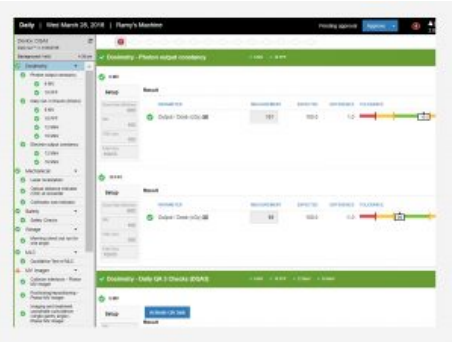
IC Profiler – Sun Nuclear



SunCHECK™ Machine – Sun Nuclear

Complete Machine QA in One Streamlined Application

SunCHECK™ Machine integrates all Machine QA — from Daily Output checks to Annual QA tasks, and everything in between — with visibility for all stakeholders.



Standardize Daily, Monthly, Annual QA
Ensure standardization among clinics and machines with shared tolerances. Apply ready-to-use, yet customizable, templates for efficient QA. No more spreadsheets!

Streamline Machine QA with Device Connectivity and Control
Automate data collection with direct device integration to Daily QA™ 3, IC PROFILER™ and IC PROFILER™-MR — no need for additional software and transfer of data. Complete your entire TG-142 and DIN QA easily within SunCHECK.

Browser-Based Access
Access Machine QA and results from any networked computer. One point of access drives efficiency and critical consistency across locations, machines and staff.

Automate Imaging, MLC and VMAT QA
Deliver QA beams and SunCHECK Machine automatically captures, processes and analyzes the images or log files. Results are stored and, if necessary, notifications are sent, based on pass/fail status.

“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.”

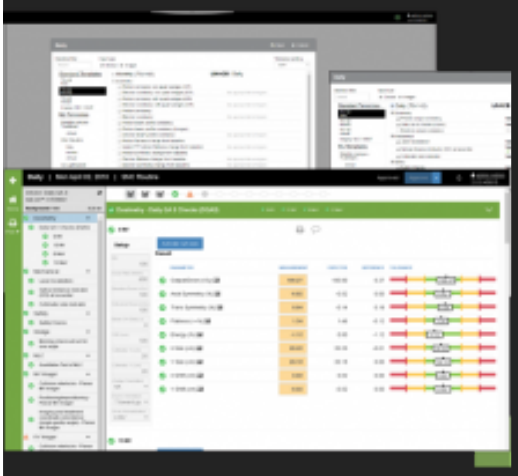
Curtis Baker, M.S., DABR,

Hamilton Medical Center

IC PROFILER & Daily QA 3 Integration
With direct connectivity from IC PROFILER and Daily QA 3 to SunCHECK:

- Efficiently complete daily, monthly and annual QA – no manual data entry required.
- Deliver the test beam, then accept or reject results on your terms and timeframe.

Learn more about IC PROFILER >
Learn more about Daily QA 3 >



Proactive Machine Analysis
With SunCHECK Machine, get ahead of your team’s asset management and compliance needs. Data trending tracks parameters approaching out-of-tolerance levels.

Report templates demonstrate compliance with accreditation bodies, and centralized storage makes report retrieval easy.

SunCHECK™ Platform – Sun Nuclear

INTEGRATED. INDEPENDENT.
One Platform for Your Patient and Machine QA

SunCHECK™ is integrated, independent Patient and Machine QA. Integrated QA provides standardization and workflow efficiency. Independent QA removes bias, assuring more treatment and machine issues will be caught.

Radiation therapy is complex. SunCHECK simplifies it — with a single QA interface and database, a centralized view of Quality Management, and greater opportunity to improve Patient Safety.

One Solution for Radiation Therapy QA
Manage all Patient and Machine QA in the same place to save time and reduce the likelihood of undetected errors.

Speed and Efficiency through Automation
Cut time consumed by manual tasks. Eliminate the need for multiple applications. Gain bandwidth for data analysis, clinical decisions and continuous improvement.

Access from Anywhere
Untether your team with secure, browser-based visibility to the insights they need to see, wherever they are.

Leverage EPID for Risk Management
Verify and track dose throughout the treatment course to catch the most common types of errors — patient setup errors, anatomy changes, and machine errors.

Seamless Clinical Integration
SunCHECK supports virtually every combination of OIS, TPS, linac and clinical implementation. Count on custom installation, with a quick start-up guaranteed.

SunCHECK™ Patient

Validate treatments are planned and delivered as intended, with a seamless workflow and holistic view of Patient QA.

PlanCHECK™ DoseCHECK™ PerFRACTION™

SunCHECK™ Machine

Understand your Machine QA needs at a glance, and automate image-based and templated tests. Directly connect your Sun Nuclear devices to pull in real-time measurements for further automation.

SunCHECK™ Machine | SNC Machine Software

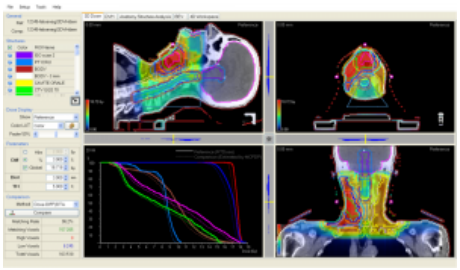
SunDEPLOYS™

SunCHECK Platform Implementation Support

From upfront requirements analysis and goal definition through clinical adoption, the SunDEPLOYS™ program ensures a successful SunCHECK Platform introduction.

Your dedicated SunDEPLOYS team works side-by-side with you to meet your clinical operational goals, from project management, site planning, and system preparation, all the way through training and go-live support.

3DVH Software for Patient QA – Sun Nuclear



3DVH Software transforms the field of per-patient dose QA by generating clinically-relevant and intuitive analyses of complex IMRT and VMAT plans. With proven accuracy, 3DVH estimates the 3D dose to the patient-specific geometry.

3DVH Software features:

- fast results with automated tools – Quick Stat Templates,
- quick Dose Profiles, DICOM compliant workflow
- no forward dose calculation into the patient CT
- no commissioning
- uses existing measurements and devices
- with optional Respiratory MotionSim module, analyze the dosimetric impact of a moving target
- transform 2D measurements to 3D dose volume for advanced analysis
- perform 3D dose and DVH QA analysis on patient – not phantom – geometry
- supports coplanar and non-coplanar beams
- identify TPS and beam delivery errors
- intuitive and familiar presentation of dose and DVH with statistics per anatomical structure

3DVH Software compatibility:

- hardware: ArcCHECK, MapCHECK 2
- software: SNC Patien, EPIDose
- rotational therapy: RapidArc, VMAT
- static gantry: IMRT
- treatment planning systems: Pinnacle, Eclipse, and most TPS systems that can export DICOM data
- FFF & non-FFF deliveries

Read more about 3DVH Software on the Sun Nuclear website

MapCHECK®3 – Sun Nuclear

The Benchmark for 2D IMRT QA

MapCHECK®3 is the gold standard for IMRT QA requiring large field measurements.

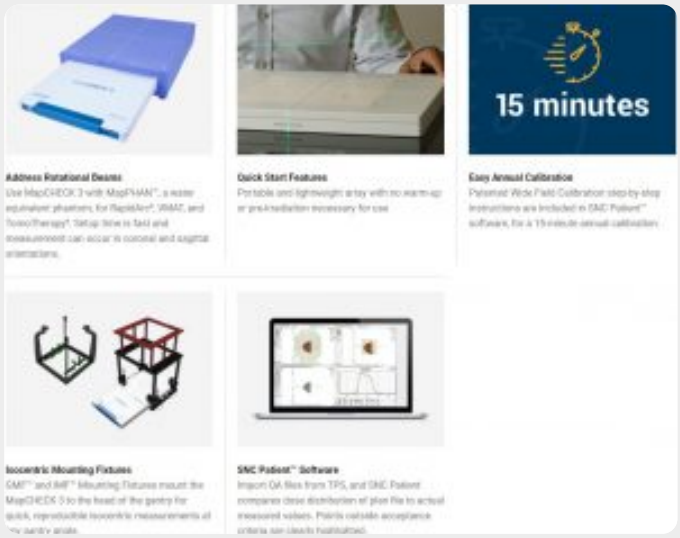
It offers the highest detector density, highest sensitivity, and largest field size of 2D arrays. Plus, it’s uniquely TG 218-compliant.

Built for Pre-Treatment IMRT QA

SunPoint® 2 Diode Detectors placed uniformly throughout the array offer high sensitivity and proven stability in a large active field size (26 cm x 32 cm). A real-time electrometer measures every pulse with 50-millisecond updates.

Easy Comparison Features

Simply import the QA files from your TPS, and let SNC Patient™ software compare dose distribution from the plan file to actual measured values. Measured points outside of acceptance criteria are highlighted for high and low dose.



SRS MapCHECK – SunNuclear

SRS PATIENT QA, NO FILM

SRS MapCHECK removes film and subjectivity from stereotactic QA, and offers efficient, electronic Patient QA and end-to-end testing.

It supports conventional linacs, CyberKnife® Systems, Varian HyperArc™ Systems, and vertex delivery beams to help prevent treatment errors.

But, most importantly, SRS MapCHECK's main objective is accuracy. Because of this product, patients will receive safe and accurate stereotactic radiotherapy. The treatments will also be more efficient and simple. MapCHECK can be used as a stand-alone 2D array, but it can also be used in combination with StereoPHAN.

MOVING BEYOND FILM

SRS MapCHECK takes the place of film and makes the workflow for time-sensitive patient QA more efficient. MapCHECK is a consistent and easy to maintain method for high-density, absolute dose measurements.

IRRADIATE FROM ANY ANGLE

In combination with the StereoPHAN, SRS MapCHECK uses a patented technique to account for angular dependence and correct when necessary. It also pairs this technique with field size and puls rate corrections to ensure accuracy from any angle, including vertex fields.

FLEXIBILITY, SPEED AND ACCURACY

MapCHECK is proven to efficiently detect output factor, MLC, and grid size errors. SRS MapCHECK prevents the most common sources of SRS treatment errors.

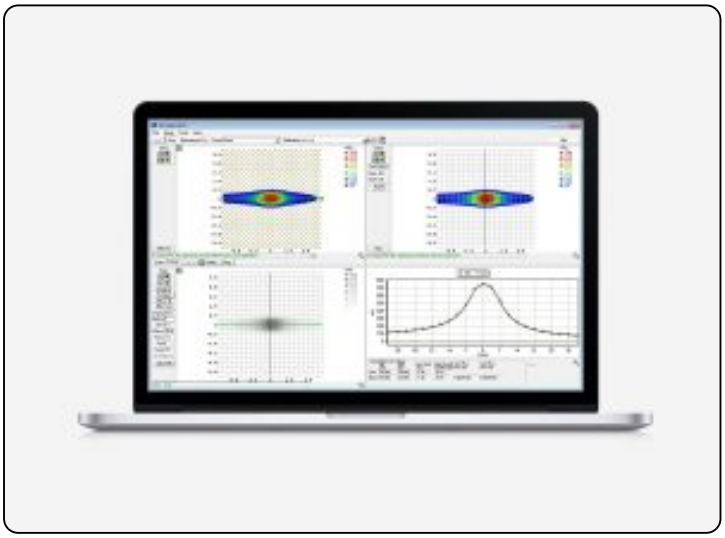
NEW IN SNC PATIENT V8.4

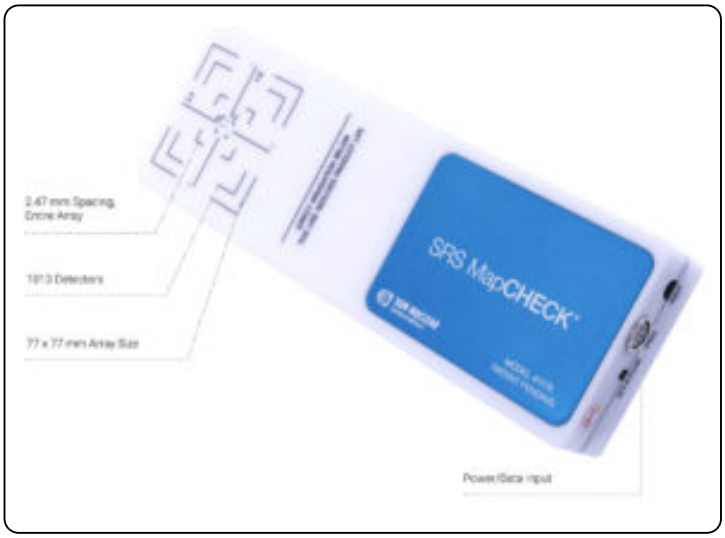
The latest software update introduces the QA Setup Tool. This tool provides guidance for ideal setup of Single-Isocenter Multiple-Target (SIMT) plans, and simplified shifts for occasional larger fields.

SNC Patient v8.4 demonstration

SRS MAPCHECK FEATURES

- 2D array for SRS applications
- High resolution because of two diodes
- Relpaces film and standalone detector for efficiency
- Provides absolute and relative dose in a single measurement
- The QA setup tool in SNC Patient provides guidance for ideal setup
- Work with static, rotational and non-coplanar, CyberKnife®, FFF, cone and MLC fields
- In combination with the StereoPHAN, it supports irradiation at any angle





"This [array] gives us high-quality patient QA in minutes rather than hours and significantly enhanced patient throughput."

- Brett Miller, University of Tennessee Medical Center
- Stereotactic QA: saving time, delivering outcomes, Physics World, July 2019

CLINICAL NOTE

Smaller, High Density Arrays vs. Larger, Lower Density Arrays for Stereotactic QA

Performing patient-specific stereotactic QA on plans with multiple targets and a single isocenter can

be complex. Radiation therapy teams rely on arrays to ensure treatments will be delivered as expected. This clinical note explores the importance of detector density in arrays for measuring stereotactic patient QA.

For more information about SRS MapCHECK, take a look at this page from our partner.

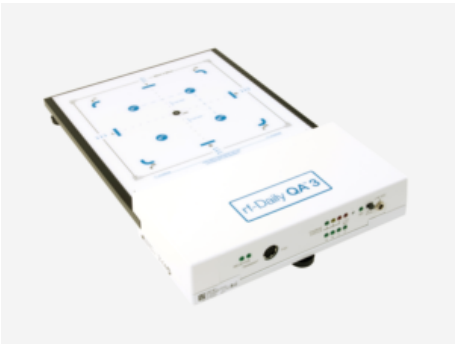
Would you like to know more?

Contact PEO!

Daily QA 3 – Sun Nuclear

Daily Beam Quality Analysis in One Measurement

Daily QA™ 3 sets the standard for efficient and powerful routine QA. A single beam measurement results in five beam quality checks. Accepted data is automatically written to a SQL database in real time, where it is available for trending, review and analysis



An Easy Handoff from Physicist to Therapist
Physicists are able to set up daily test templates for their modalities and machines which can then be used by a Therapist to easily conduct daily tests and automatically run pre-set templates.

Eliminate Back-and-Forth
Simply enter the linac vault, position the device, turn the beam on and start the pre-set tests in the software – no warm-up or pre-irradiation required, and no additional trips to the vault needed.

Easy Setup
Power Data Interface (PDI) is managed through Sun Nuclear's single-cable architecture.

Fast Daily Checks of Energy Constancy & Beam Quality
After daily test beam delivery, see results for:

- Dose output
- Beam flatness
- Beam symmetry
- Beam energy
- Light-radiation field coincidence
- Shape constancy and field size shift for FFF

Compare results to baseline values in the software to determine if intervention is needed before treating patients.

One Device, 25 Detectors
For optimal results, Daily QA 3 uses both ion chambers and SunPoint® diode detectors:

- 5 ion chambers for flatness and symmetry
- 4 ion chambers for electron energy checks
- 4 ion chambers for photon energy checks

- 12 diodes for light-radiation coincidence

Rotational and FFF beams are supported, with no warm-up or pre-irradiation required for testing.

Daily QA 3 Features & Benefits

- Five beam quality checks – Output, flatness, symmetry, field size, energy
- Supports rotational and FFF beams
- Shape constancy and field size shift for FFF beams
- No flipping or additional buildup required for any test or energy
- Wireless Option
- 13 ion chambers measure output, flatness, symmetry, energy
- 12 SunPoint® Diode Detectors measure lightradiation field coincidence
- Automatic temperature and pressure corrections
- Integrated buildup; no additional buildup required
- Daily test queue two-step operation – 'Start' to begin queue, and 'Record' to accept
- Real-time measurements – view data instantly
- Use different Daily QA 3 devices for a template without creating a new baseline
- Export PDF reports
- Interfaces with the IMF™ or GMF™
- MR version (DailyQA-MR) available
- SQL database for added security and access control

SunCHECK™ Integration

With direct connectivity from Daily QA 3 to the SunCHECK Platform:

- Pre-configured TG-142 tests, tolerances and categories enable significant efficiency gains for daily QA workflows.
  - Safety, MLC and imaging tests reside in same database as Daily Dosimetry tests.
- Connect your device and data is collected automatically – eliminating the possibility of manual data entry errors.
- Alerts for overdue or failed results allow you to put your Machine QA on autopilot.

PUBLICATION

Diagnosing Atmospheric Communication of a Sealed Monitor Chamber

Read about the findings of daily output variations as measured by two independent systems, as it relates to monitor chamber communication with atmospheric conditions.

EDGE Detector – Sun Nuclear

Ultimate Small Field Detector
for Precision 3D Dosimetry

EDGE Detector™ characterizes penumbra more precisely and with less averaging than ion chambers, making it the preferred detector for small field beam modeling and QA.

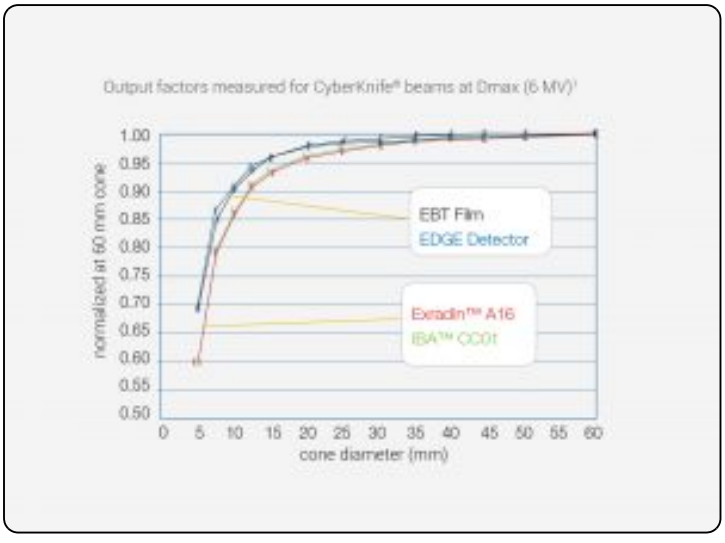
Waterproof and highly accurate, it works with all common water phantoms for SRS and IMRT beam modeling and TPS commissioning.

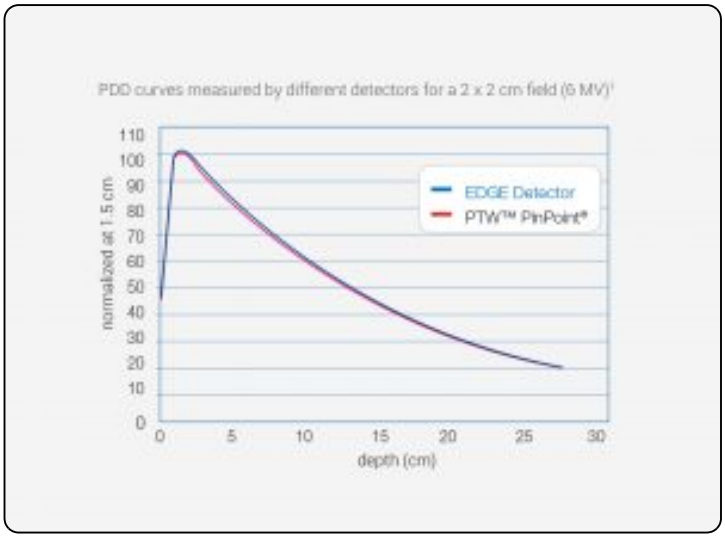
Well-Suited for Small Fields
EDGE Detector is comprised of a SunPoint® Diode Detector that is 842 times smaller, and has 100 times more signal, than micro ionization chambers. Its small size makes it ideal for accurate penumbra characterization and steep gradients for fields ≤10 cm.

Maintain Compliance
EDGE Detector supports compliance with TRS483 and precision dosimetry.

“The practical methods described can be used for commissioning an SRS system with small cones. New correction factors significantly improve agreement between different detectors.”

- E. Lief, et al
- Measurement of Output and Percent Depth Dose (PDD) for Small Stereotactic Radiosurgery (SRS) Cones Using Semiconductor and Microdiamond Detectors





SunCHECK™ Patient

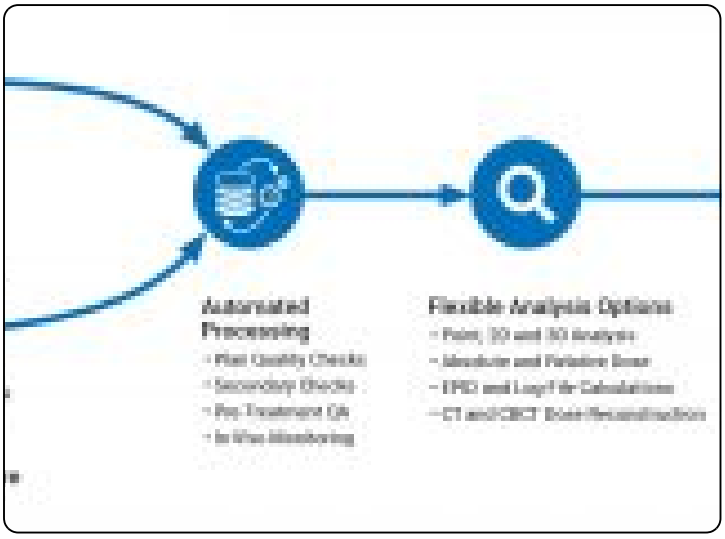
Independent Patient QA in a Single Workflow

SunCHECK™ Patient brings Plan Checks, Secondary Calculations, Pre-Treatment QA and In-Vivo Monitoring into a single workflow, on the same platform as your Machine QA.

Purposefully Automated
SunCHECK Patient streamlines data transfer and time-consuming tasks, enabling greater focus on improved treatment quality.

Common Analysis Tools & Centralized Storage of Results
In support of standardization, SunCHECK Patient provides common analyses across each Patient QA phase — and stores all results for easy retrieval and review.

Custom-Fit for Your Clinic
We optimize SunCHECK Patient for the planning and delivery technologies you use — and provide flexible, automated analysis options for every step. As updates occur and your needs evolve, SunCHECK Patient adapts.



“Because this system is fully automated so that no physicist time is required for data acquisition and evaluation, daily patient treatment QA is feasible.”
- Zhuang AH, Olch AJ.,
- *J Appl Clin Med Phys (2018)*

DoseCHECK – Sun Nuclear

DoseCHECK is the independent, secondary 3D dose calculation solution for today's radiation oncology department. Sun Nuclear designed this solution to seamlessly fit your workflow and meet your clinical needs—with verification of the full patient dose volume.

It works with minimal user intervention, with no need to manually create, register or input patient plans into the system. Upon plan approval, simply push the DICOM files from your treatment planning system to the application.

FEATURES

- full, independent 3D volume generation
- efficient dose-to-dose evaluation
- seamless integration with PerFRACTION

SUPPORT

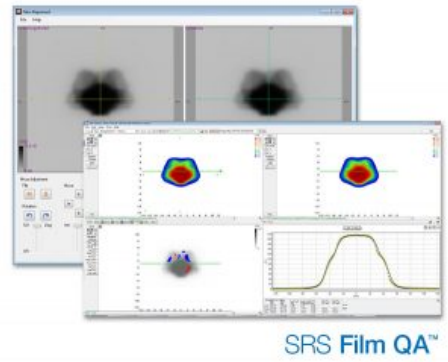
Version 1.0 includes support for:

- Elekta and Varian machines
- Monaco, Eclipse, Pinnacle, RayStation
- photon beams (conformal, IMRT, VMAT)
- SRS/SBRT plans
- 3D dose

If you want to read more about the SunCHECK platform, including PlanCHECK and DoseCHECK? Take a look at our partner's website!

SRS Film QA Software – Sun Nuclear

SRS Film QA Software (Sun Nulcear) functions within SNC Patient Software to analyse and convert scanned film image data to dose for any stereotactic modality. Measured dose can be compared to an imported patient treatment plan.



SRS Film QA Software features:

- phantom fiducials are verified slice by slice
- usable with EBT film
- IMRT, VMAT and SRS beams
- H&D curve is not required
- extract any arbitrary plan from a 3D dose object
- analyzes film as if it were MapCHECK measured data

Contact our product specialist or download the datasheet below.

SNC Machine Software – Sun Nuclear

SNC Machine listens for and captures your QA files, processes and analyzes the files, and saves the results to the database. Simply login to SNC Machine and immediately view a dashboard of results. Accept results that pass, drill down into the analysis details for results that fail. Trend any piece of data against any other piece of data. It is that simple, and that powerful.

SNC Machine Software features:

- works with MOSAIQ, Varian, Aria and Elekta
- VMAT and TG-142 test libraries (19 different tests)
- test results can be visualized and trended against other test results

SNC Machine Software Tests:

- beam symmetry, field Size, beam flatness
- TG-142 imaging: kV Image Quality & Accuracy, CBCT Image Quality & Accuracy, MV Image Quality & Accuracy
- TG-142 mechanical: Light/Radiation Congruence, Winston-Lutz Radiation & Machine Isocenter, MLC Picket Fence, MLC Positioning & Leaf Speed, Gantry/Couch/Collimator Starshot

Phantoms compatible with SNC Machine Software:

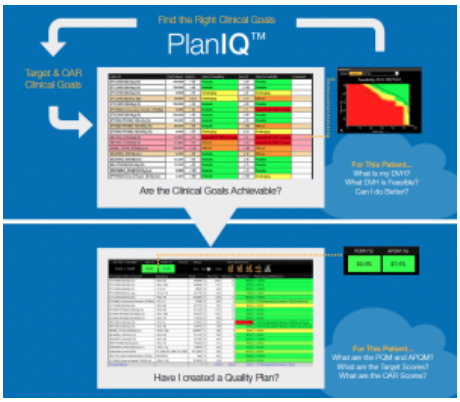
- Sun Nuclear: MV-QA, kV-QA, FS-QA, WL-QA
- Phantom Laboratory: CatPhan 503, 504, 600
- Varian: Las Vegas Phantom
- Gammex: 464
- Standard Imaging: PipsPro Phantoms
- Leeds: TOR 18FG

Do you want to know more about the SNC Machine Software?

If you want to continue your search for additional information on this product try this link.

PlanIQ Software – Sun Nuclear

Use PlanIQ as a patient-specific solution to both measure and improve plan quality. Get instant feedback on the feasibility of achieving established clinical goals, and know when they can be tightened to achieve what is possible for each patient. Quantitative scorecards measure treatment plan quality with easy to comprehend metrics that reflect your clinical goals. It’s that simple, and that powerful.



PlanIQ Software features:

- saves time and results in better plans
- uses sliding-scale metrics
- 70 customizable and site-specific protocol libraries
- patented adjusted PQM (APQM)
- compatible with Eclipse RapidPlan and Pinnacle3 Auto-Planning

Read more about the PlanIQ Software on the Sun Nuclear website

Respiratory MotionSim (RMS) – Sun Nuclear

Respiratory MotionSim (RMS) allows the clinician to simulate the dosimetric impact of target motion with proven accuracy. Extending the patented 3DVH 4D dose perturbation methodology, RMS allows the physicist to define motion trajectories and quantitatively evaluate the impact of organ motion on dose distribution. RMS is an important tool for clinicians committed to evidence-based decision making and quality assurance of highly-modulated radiation therapy treatments where organ motion is a concern.

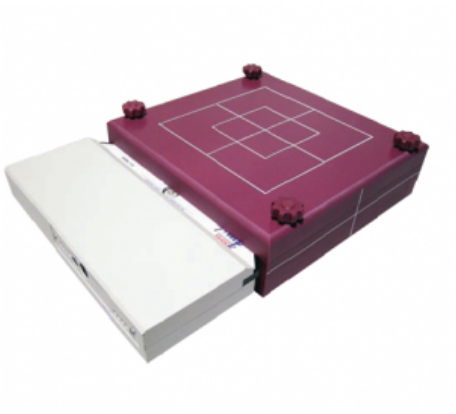
Respiratory MotionSim features:

- evaluate motion impacts on 3D Dose and DVH
- determine if motion management is necessary, and add to QA motion management plans
- use existing QA measurements and avoid bulky mechanical motion phantoms

Read more about Respiratory MotionSim on the Sun Nuclear website

MapPHAN – Sun Nuclear

The MapPHAN is a water equivalent phantom that adapts any MapCHECK2 for RapidArc, VMAT and TomoTherapy. Setup time is fast and measurement may occur in coronal and sagittal orientations.



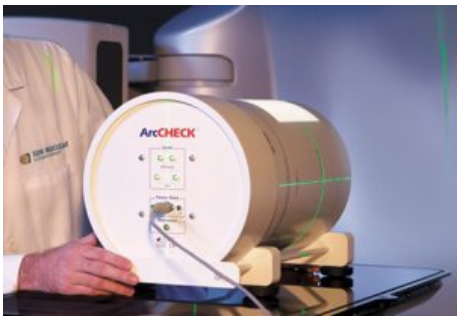
MapPHAN features:

- construction: Virtual Water
- available Depths (cm): 5.0, 10.0
- area: (cm2): 35.0 x 38.0
- weight without MapCHECK2: 5 cm MapPHAN 8.0 kg, 10 cm MapPHAN 21.0 kg

Read more about the MapPHAN on the Sun Nuclear website

ArcCHECK 4D – Sun Nuclear

ArcCHECK is the only true 4D array specifically designed for QA of today’s modern rotational deliveries. At its heart are over 1300 SunPoint Diode Detectors providing consistent and highly sensitive measurements for all gantry angles, with no additional hardware required. Independent absolute dose measurements enable the gold standard for stringent and efficient patient plan and machine QA testing.



ArcCHECK 4D features:

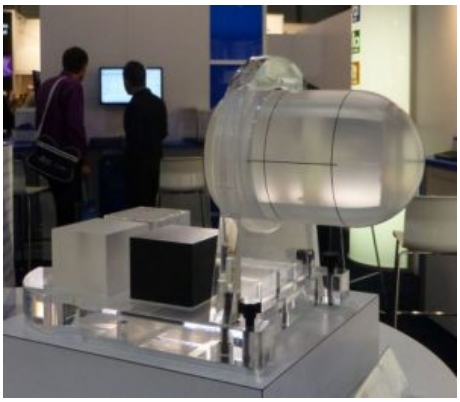
- smallest available detectors for accurate measurements
- BEV is consistent regardless of gantry angle
- 3D and DVH Analysis
- Flattening Filter Free (FFF)
- easy setup and lightweight (16kg)
- measure both composite and per control point
- real-time updates (50ms)

ArcCHECK 4D compatibility:

- rotational therapy: RapidArc, VMAT, TomoHelical
- static gantry: IMRT, TomoDirect
- treatment planning systems: Pinnacle, Eclipse, Monaco, iPlan, and any TPS system that can export DICOM data
- FFF and non-FFF deliveries

Contact our product specialist or download the datasheet below.

StereoPHAN Phantom – Sun Nuclear



StereoPHAN is designed for end-to-end commissioning and quality assurance testing on all parts of the SRS process. StereoPHAN inserts and configurations are quickly exchanged with no tools or change in setup. It’s that simple, and that powerful.

StereoPHAN Phantom features:

- easy setup and assembly; no tools required for assembly, stand base can be mounted to a couch that uses the prevalent Lok-Bar system, phantom stand holds the inser ts, making them easily accessible during testing
- single cube insert tests CT and MRI imaging, including slice position, thickness and alignment
- target volumes in CT/MRI cube eliminate need for CT/MRI markers
- flat surface of ion chamber insert enables easier cross-calibration to water than the curved surface of a spherical geometry
- all components fit into a durable rolling case suitable for storage and air travel
- stereotactic (SRS/SRT/SBRT) end-to-end testing and patient-specific QA
- adapters for Head-Frames and CyberKnife
- quality assurance of image fusion algorithms for CT and MRI imaging modalities
- absolute, relative and point dose dosimetry QA measurements at isocenter with ion chambers; relative dose distribution using film
- dosimetry detector cabling remains outside of beam for interference-free dose measurement regardless of measurement setup
- geometric accuracy; optical and geometric isocenter, laser alignment, indexed table positioning alignment and positioning coordinates, CBCT and MV/kV isocenter alignmenent

Read more about the StereoPHAN Phantom on the Sun Nuclear website

IC Profiler – Sun Nuclear

The IC Profiler (Sun Nuclear) is an ionization chamber based solution for direct QA on linac. It can be seen as the perfect substitute for a water phantom. IC Profiler is a complete scanning system for field adjustments, Linac factory testing, and routine and service QA dosimetry. The ionization chambers on the Y, X and diagonal axes measure all beam profiles after a single beam delivery.

IC Profiler features:

- accepted and proven for clinical use and factory acceptance
- solid state, ion chambers, no moving parts (or water)
- total beam QA within 30 minutes
- high speed acquistion of field profiles
- universal cable for data and power
- 32 cm X and Y length and 45 cm diagonal length
- high dose rate limit >6000cGy per minute
- start/stop button for simple measurement control
- narrow chamber design of 2,9mm width minimizes ‘dose volume averaging’
- high speed data aquisition – fast set-up of radiation field
- multiple parameters: symmetry, beam center, flatness, field size, radiation coincidence and penumbra width
- applications: diagnostics, bundle steering, beam constancy and collimator and rotational sag QA

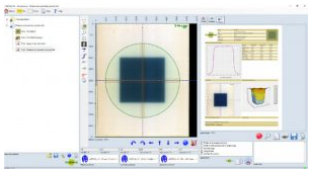
Read more about the IC Profiler Scanning System on the Sun Nuclear website

Partner Ashland

Ashland est un leader mondial dans le domaine des matériaux de spécialité, offrant des solutions innovantes qui améliorent la sécurité, la précision et les résultats pour les patients dans diverses disciplines médicales. Son portefeuille soutient les prestataires de soins de santé dans les domaines de la radiothérapie, de l'imagerie diagnostique, du traitement des plaies et de la médecine régénérative.

Product offering

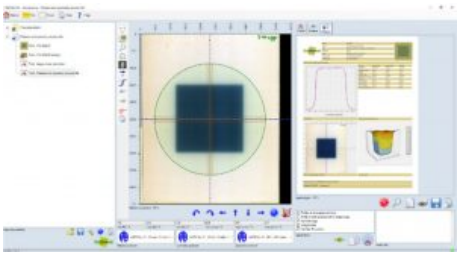
FilmQA Pro™ Software version 7 – Ashland



FilmQA Pro™ Software version 7 – Ashland

a sophisticated, quantitative analysis tool for Gafchromic™ Film

FilmQA Pro™ software is a sophisticated, quantitative analysis tool specifically designed to simplify and streamline the intensity-modulated radiation therapy quality assurance (IMRT QA). Our software is also effective for QA of SRS, SBRT and VMAT procedures. It allows you to scan or open images of exposed film and calculate the optimized dose maps.



FilmQA Pro™ software uses proprietary multi-channel dosimetry which eliminates or mitigates film and scanner artifacts by detecting whether errors are being made during scanning. In addition,, the software also has the one-scan analysis feature which combines calibration and plan verification in a single scan. The one-scan protocol requires only the patient film, a reference patch, and an unexposed patch. This protocol eliminates error sources such as interscan variability, which enables you to reduce errors to within 2 percent.

With FilmQA Pro™ software, you can get your results in minutes, post-exposure growth no longer is an issue and there is no waiting overnight for changes in the film to diminish. You can do an analysis any time you want, even at a moment's notice. The software delivers gamma passing rates ≥ 95 percent at 2 percent at 2 mm instead of using 3 percent at 3 mm.

key features and benefits

- lateral scan correction: apply a correction to compensation for lateral artifacts that can show in the scan
- new user friendly interface with a quick start menu
- one-scan protocol: fast and efficient method to achieve dose accuracy within 2%
- triple-channel dosimetry: use three color channels to optimize accuracy of dose calculations
- accurately calibrate: an entire lot with just four strips of film using our film-specific mathematical function
- quick-start screen: easily access the module you need at start-up
- dose error recognition: ability to identify accuracy of delivered dose
- superior resolution: get 100 percent of the picture from millions of measurements instead of just 0.1 percent
- no angular dependence: shoot the film from all angles, an entire plan on a single Gafchromic™ film, and validate the plan in the same way that the patient receives it

FilmQA Pro™ Software carries a CE Mark