

SunCHECK® 

The Connected Workspace  
for Higher Quality

# The SunCHECK® Platform powers Quality Management in radiation therapy.

More than 1,500 unique cancer treatment centers globally use SunCHECK to increase efficiency and enhance patient care. Scalable to meet the needs of any clinic or network, SunCHECK standardizes Quality Management -- and delivers significant operational advantages.

## SIMPLIFY WORKLOADS

Radiation oncology departments are busy. Inherently complex processes and complicated technologies have given rise to rampant inefficiencies.

SunCHECK **cuts time consumed by manual tasks**, allowing more time for data analysis, clinical decisions and continuous improvement.

## EASE PRESSURES

Even in the face of increased complexity and fragmented workflows, pressures have kept mounting.

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

## CONSOLIDATE FRAGMENTATION

For decades, QA tools arrived as separate packages designed for specific tasks. Each had unique software, databases, and workflows to learn.

SunCHECK offers a single QA interface and database, for a **centralized view of Quality Management**.

## BRING CLARITY

SunCHECK is the only comprehensive platform for Machine QA and Patient QA — enabling **independent, unbiased oversight** and **seamless integration with technologies and workflows**.



Built on Sun Nuclear's 40-year commitment to innovation, the SunCHECK roadmap is guided by delivering features and functionality based on five core tenets.

- **Innovation** to help advance the field
- **Smarter workflows** to enable greater departmental efficiencies
- **Reporting resources** to simplify the fulfillment of critical requirements
- **Analytics** to drive decision-making and continuous improvement
- **User-driven enhancements** to help ensure satisfaction



# Quality Management, Connected

Managing quality across delivery machines, patient treatment courses and department resources is simplified with SunCHECK — the source for collaboration, efficiency and insights. **SunCHECK is a shared workspace for team collaboration regardless of machines, equipment or team.**



## For Patients

- Plan Quality Assessment
- Plan Checks
- Secondary Dose Calculations
- Pre-Treatment QA
- In-Vivo Monitoring

**“The homepage provides a clear overview of the QA tasks — due, pending review, or approved. For each task, calculation and analysis occur automatically in the background to give you automated results and alerts.”**

*Evy Bossuyt, M.S. Iridium Netwerk, Belgium*



## For Machines

- Daily, Monthly, Annual QA
- Measurement Device Connectivity
- Imaging, VMAT, MLC QA
- Time-Savings on Routine Tasks



## For Teams

- One Solution for Quality Management
- Consistent & Efficient Workflows
- Seamless Clinical Integration
- Access from Anywhere

SunCHECK® Patient

# Critical Insights

From treatment planning through the treatment course, with SunCHECK, radiation therapy departments have a common place for understanding patient-specific treatment quality.

## Plan Quality Assessment

### PlanCHECK™

Plan Feasibility enables better alignment to clinical goals, showing what can be improved in a plan before treatment begins. With plan complexity metrics, check against departmental standards to determine the most achievable plan delivery.

## Plan Checks

### PlanCHECK™

Validate the treatment plan against departmental requirements, and automatically assess performance versus intent. Automating this time-consuming task for experienced medical physicists provides time to focus on other areas of quality management

## Secondary Dose Calculations

### DoseCHECK™

Perform 3D secondary dose calculations for the systems your clinic uses. Having an integrated system enables efficient planned versus calculated dose comparison. SunCHECK supports Monte Carlo and a holistic

expansion in secondary dose calculation support.

## Pre-Treatment QA

### PerFRACTION™

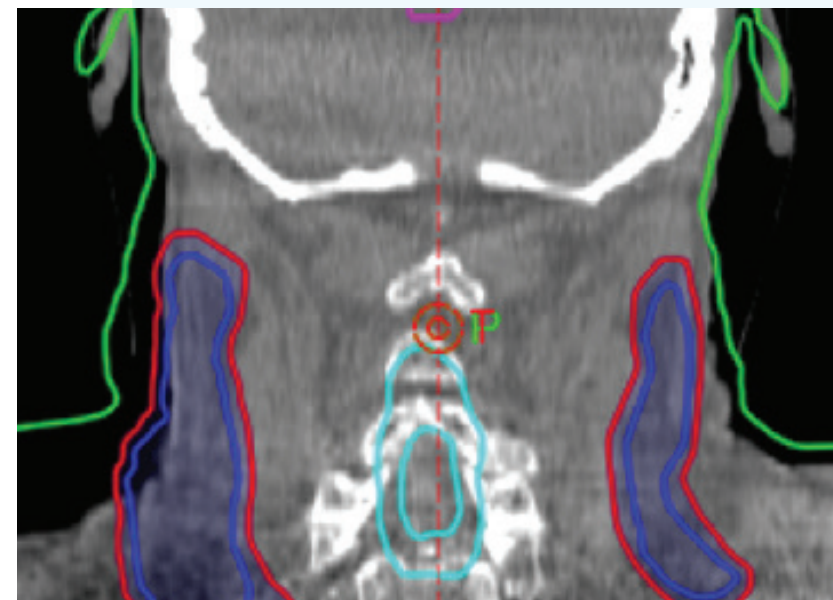
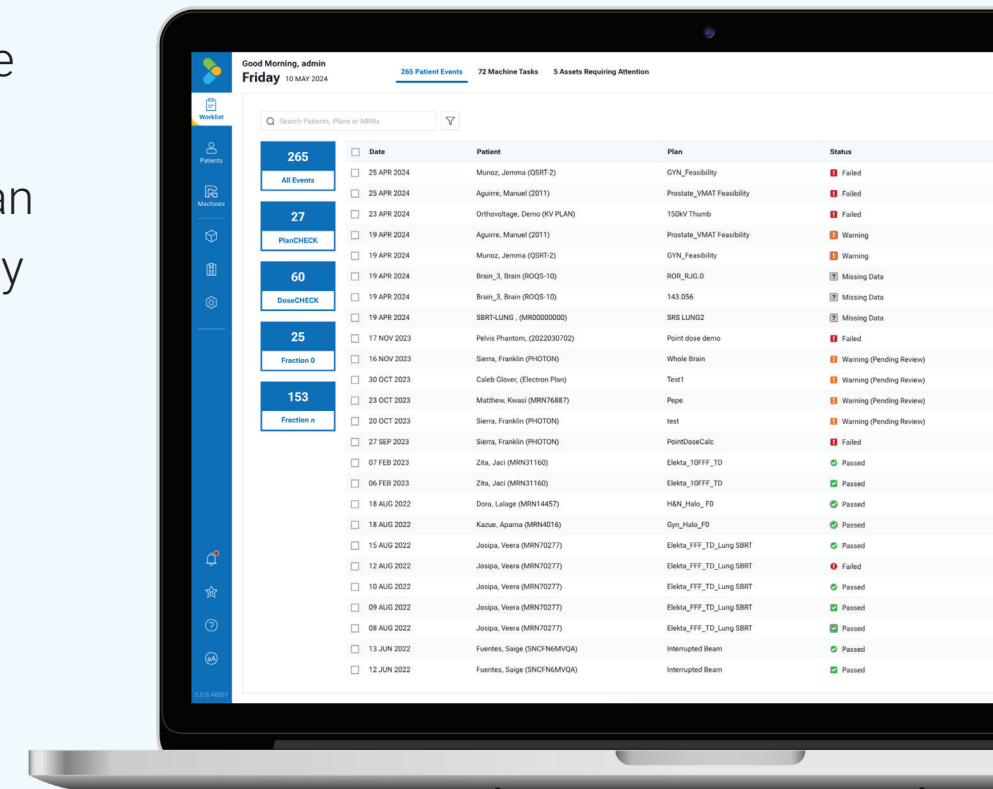
SunCHECK Patient flexibly supports 3D CRT, IMRT/VMAT AND SRS/SBRT calculation and delivery. Choose phantomless, using the EPID and/or Log File data, or directly connect with ArcCHECK® for an array-based approach. Results are presented via a dashboard and patient list – no need to manually create, register, or input patients.

## In-Vivo Monitoring

### PerFRACTION™

Verify and track dose throughout the treatment course to catch the most common types of errors – those associated with the patient, as well as machine errors.

Patient worklists give quick insights into patient treatment plan status, with the ability to easily investigate failed fractions.



## Rethink re-plans.

Skip unnecessary steps on the path to patient safety. Use real dosimetric data to re-plan only when needed.

With automated in-vivo monitoring, SunCHECK enables clinical teams to catch and correct for anatomy changes throughout the treatment course – only re-planning when necessary.

SunCHECK® Machine

# Stronger Collaboration

SunCHECK Machine QA features make it easy to manage and automate time-intensive machine quality measurements.

### 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!

### 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.

### Streamline Machine QA with Direct Device Control

Automate data collection with direct device integration to Daily QA™ 3, IC PROFILER™, PC Electrometer™ and 1D SCANNER™ – no need for additional software and transfer of data. Complete your entire TG-142 and DIN QA easily within SunCHECK.

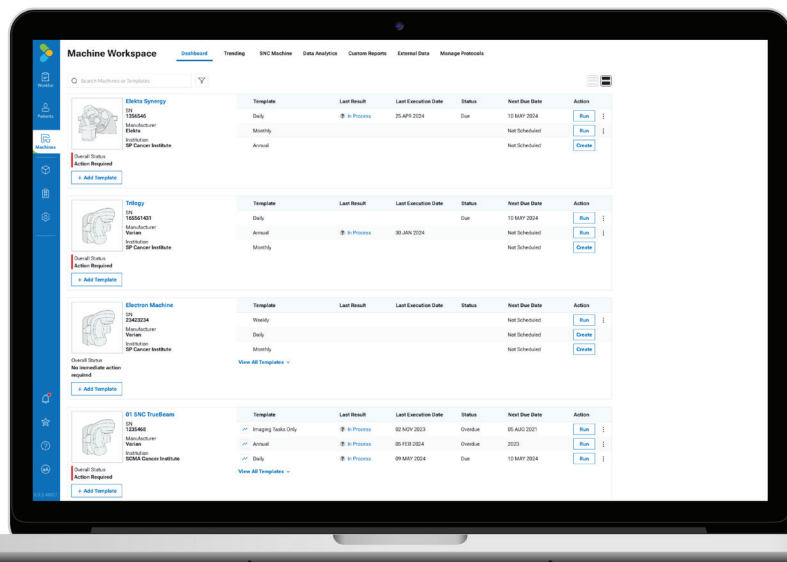
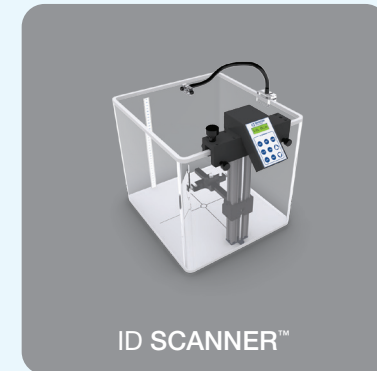
### Save Time on Routine Tasks

Organizing and automating time-intensive machine quality measurements is made easier with features like asset management to link departmental equipment to tasks, and template sharing with other machines and SunCHECK users.

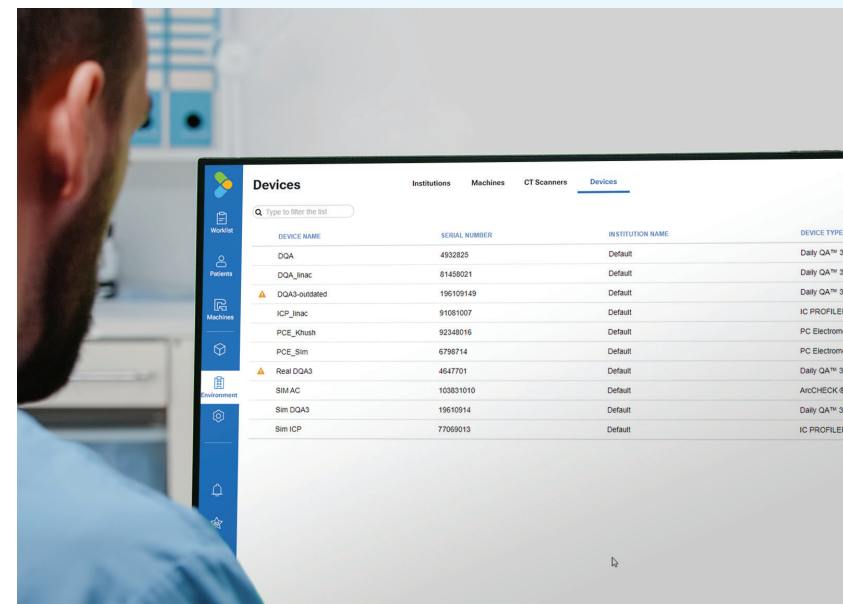
### Direct Device Control

Direct connectivity from Sun Nuclear devices to SunCHECK enables:

- Streamlined Output factor measurements into a single workflow with reduced software interactions with automated measurement recording.
- Efficient daily, monthly and annual QA – no manual data entry required. Deliver the test beam, then accept or reject results on your terms and timeframe.



Easily create and track testing for machines across your department.



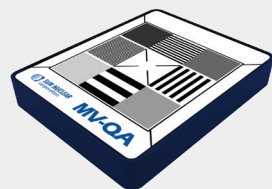
### Time-Savings: 648 Hours of Daily & Monthly QA

A one-year summary of a 10-linac network using SunCHECK for Machine QA found 208 hours saved in Daily QA Physics Checks and 540 hours saved in Monthly QA, equating to 83% and 82% efficiency gains, respectively.<sup>1</sup>

<sup>1</sup> Onsite assessment conducted by Sun Nuclear, 2023

## SNC Phantoms

### MV-QA

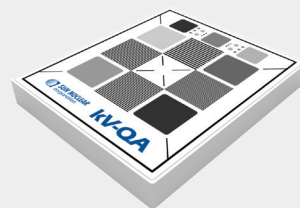


#### Applications

- Image scaling, positioning offset, spatial resolution, contrast, uniformity and noise
- Easy setup, alignment clearly marked on overlay and image

MV Line Pairs (mm)	0.1, 0.2, 0.5, 1.0 ± 0.025
MV ROI	9 (4 spatial, 4 contrast, 1 center)
MV Dimensions (cm)	12.7 L x 10.2 W x 2.5 D

### kV-QA

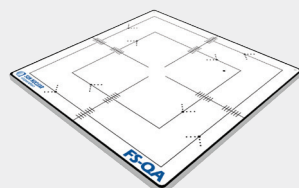


#### Applications

- Image scaling, positioning offset, spatial resolution, contrast, uniformity and noise
- Easy setup, alignment clearly marked on overlay and image

kV Line Pairs (mm)	0.6, 1.2, 1.8, 2.4 ± 0.01
kV ROI	28 (4 spatial, 23 contrast, 1 center)
kV Dimensions (cm)	12.7 L x 12.7 W x 1.6 D

### FS-QA

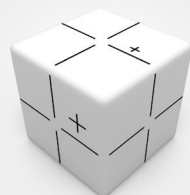


#### Applications

- Symmetric and asymmetric light field/radiation field coincidence and jaw positioning
- Flatness and symmetry for photon and electron beam profile constancy

Field Sizes (cm)	10 x 10; 15 x 15
Markers (±0.1 mm)	56 - Field size (7 per field edge)
Dimensions (cm)	17.8 L x 17.8 W x 0.6 D

### WL-QA



#### Applications

- Winston-Lutz measurements
- Imaging and radiation field isocenter coincidence
- Cone-beam CT positioning/repositioning
- End-to-end IGRT positioning tests
- 3D isocenter offset results

Dimensions (cm)	6.0 x 6.0 x 6.0
Sphere Size (mm)	7.0
Sphere Center Accuracy (mm)	0.2

## Specifications

### SunCHECK® Patient

Browser Support	Google Chrome (recommended), IE 11
Meets Reimbursement/Reporting Requirements	Yes
Supported Treatment Modalities	HDR Brachytherapy, 3D CRT, IMRT, VMAT, SRS and SBRT
API Connectivity	Yes, SunCHECK Patient

### Plan Quality Checks - PlanCHECK™

Treatment Planning Systems Supported	Varian Medical Systems® Eclipse™ via Scripting, others via DICOM
Physics Checks	Rules-based checks: Treatment and non-treatment beam verifications, plan parameters, structures and deliverability
Dosimetric Checks	Structure-based checks: Dose/volume metrics with user-definable constraints; complex dosimetry metrics such as: Conformality Index, Conformation Number, Gradient Index and Gradient Measure for multiple structures, plus Homogeneity Index, Inhomogeneity Index and more
Plan Feasibility & Plan Complexity Metrics	Ensure alignment to clinical goals, with DICOM/API connectivity seamlessly showing DVH data from the TPS; Evaluate plans against key metrics and published standards to determine most achievable delivery

### Secondary Calculations - DoseCHECK™

Supported Systems	<ul style="list-style-type: none"> <li>• Elekta and Varian Medical Systems® Linacs, including Varian Medical Systems® Halcyon™ System</li> <li>• Accuray TomoTherapy Hi-Art®, H-Series™ and Radixact® Systems, including Precision Treatment Planning System</li> <li>• Varian Medical Systems® and Elekta HDR Brachytherapy Systems</li> </ul>
Dose Calculation Algorithms	<ul style="list-style-type: none"> <li>• Conventional Linacs: Collapsed Cone Convolution Superposition</li> <li>• TomoTherapy Systems: Monte Carlo</li> <li>• HDR Brachytherapy: TG-43 compliant algorithm</li> </ul>
Available Analysis & Pass/Fail Criteria	<ul style="list-style-type: none"> <li>• Photon: Composite &amp; Beam Point doses, MUs*, 3D Dosimetric Analysis</li> <li>• Electron: Beam Point doses</li> <li>• HDR: Composite Point doses, Source Information, Multi Fraction Plans, 3D Dosimetric Analysis</li> </ul>

### Pre-Treatment QA - PerFRACTION™

Data Sources	EPID and/or Log Files (dependent on Linac and imaging type used in delivery), and/or ArcCHECK array
Available Analysis & Pass/Fail Criteria	<ul style="list-style-type: none"> <li>• Composite and Beam Point Doses, 2D Relative Dose Analysis, 3D Dosimetric Analysis</li> <li>• 2D Absolute Dose Analysis (Absolute Dose Option**)</li> </ul>

### In-Vivo Monitoring - PerFRACTION™

Dose Calculation Image Set	Planning CT, Cone Beam CT (CBCT Recalculation Option**)
Available Analysis & Pass/Fail Criteria	<ul style="list-style-type: none"> <li>• Composite and Beam Point Doses, 2D Relative Dose Analysis, 3D Dosimetric Analysis</li> <li>• 2D Absolute Dose Analysis (Transit Dosimetry Option**)</li> </ul>

### SunCHECK® Machine

Browser support	Google Chrome (recommended), IE 11
Meets Reimbursement/Reporting Requirements	Yes
Daily, Monthly, Annual QA	<ul style="list-style-type: none"> <li>• TG-142 (all 127 tests in tables 1-6)</li> <li>• TG-51</li> <li>• DIN</li> <li>• Daily QA Support: TG-66, TG-148, TG-135 and 10CFR 35</li> <li>• Custom tasks and templates</li> </ul>
Protocol support	<ul style="list-style-type: none"> <li>• TG-142 (all 127 tests in tables 1-6)</li> <li>• TG-51</li> <li>• DIN</li> <li>• Daily QA Support: TG-66, TG-148, TG-135 and 10CFR 35</li> <li>• Custom tasks and templates</li> </ul>
Direct Device Connection	Daily QA™3, IC PROFILER™ and Quad Wedges (Optional), PC Electrometer™, 1D SCANNER™

### Imaging, VMAT, MLC QA - SNC Machine™

Imaging Test Support	<ul style="list-style-type: none"> <li>• Image Quality: CBCT, kV, MV</li> <li>• MLC</li> <li>• VMAT</li> </ul>
MLC/Mechanical	<ul style="list-style-type: none"> <li>• MLC: Picket Fence, Positioning, Leaf Speed, Hancock</li> <li>• Winston Lutz: Radiation &amp; Machine Isocenter, Hancock</li> <li>• Starshot: Gantry, Couch, Collimator</li> <li>• Light/Radiation Field Congruence</li> </ul>
VMAT	<ul style="list-style-type: none"> <li>• Dose Rate vs. Gantry Speed</li> <li>• Leaf Speed</li> <li>• Arc Point Dose</li> <li>• DMLC Point Dose</li> </ul>
Other Key Functionality	<ul style="list-style-type: none"> <li>• Equipment Log</li> <li>• Device Calibrations</li> <li>• Software Versions/ Updates</li> <li>• Machine maintenance documents</li> </ul>
Asset Management	<ul style="list-style-type: none"> <li>• Equipment Log</li> <li>• Device Calibrations</li> <li>• Software Versions/ Updates</li> <li>• Machine maintenance documents</li> </ul>
External Data Import	.XML or .CSV data files for single reporting location

SunCHECK®



**Sun Nuclear  
Headquarters (US)**

**Phone**  
+1 (321) 259-6862

**Address**  
3275 Suntree Blvd,  
Melbourne, FL 32940

**Sun Nuclear  
Virginia (US)**

**Phone**  
+1 (757) 855-2765

**Address**  
900 Asbury Ave  
Norfolk, VA 23513

**Sun Nuclear  
GmbH**

**Phone**  
+49 6102-50495-00

**Address**  
Gutenbergring 67 A 22848  
Norderstedt, Germany

**SunServices™  
Center - EMEA**

**Phone**  
+31 20 399 90 41

**Address**  
Verlengde Poolseweg 36  
4818 CL Breda, The Netherlands

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