SRS MapCHECK®

SRS & SBRT QA, No Film

SUN NUCLEAR
A MIRION MEDICAL COMPANY

Proven, Film-less SRS & SBRT QA

More than ~650 clinical users worldwide have adopted SRS MapCHECK® for fast and accurate film-less stereotactic QA. With a global user community and a growing body of literature, SRS MapCHECK has emerged as a new standard for clinical efficiency and versatility.

SRS MapCHECK removes film — and subjectivity — from SRS/SBRT QA, and offers streamlined, digital testing for improved Patient Safety.

Move Beyond Film

- Film equivalent SRS/SBRT QA
- Compatible with StereoPHAN™ phantom for rotational deliveries
- Streamlines workflow down to ~10 minutes

Irradiate from Any Angle

- TG-218 compliance - accounts and corrects for angular dependence, field size, and pulse rate
- Accurate dose measurement from any angle, including vertex fields
- Flexibility, Speed & Accuracy
- Detects for output factor, MLC, and grid size errors
- Prevents more common sources of SRS/SBRT treatment errors
- Compatible with a broad range of treatment delivery systems

Unmatched Diode Detector Resolution

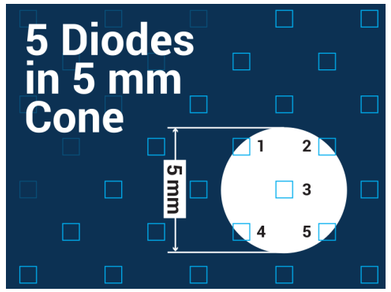
- Measures field sizes down to 5 mm (5 diodes in 5 mm cone)
- Supports AAPM TG-101 requirement (<1 mm detector for SRS measurements)

SNC Patient™ Software

- Robust angular corrections
- Single-Isocenter Multiple-Target (SIMT) plan setup guidance
- Couch kick compatible

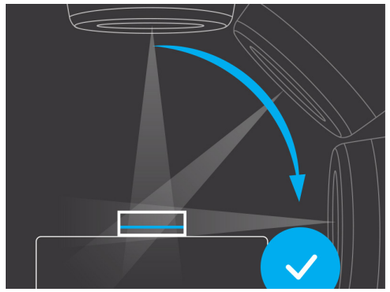
High Density, Unmatched Diode Detector Resolution

The 2.47 mm detector spacing in SRS MapCHECK provides 5 detectors within a 5 mm field, enabling measurements as small as 5 mm — the smallest clinically used field size at most sites. Combined with an unmatched 0.48 mm detector resolution and patented angular dependence correction, SRS MapCHECK supports robust QA and task group requirements.



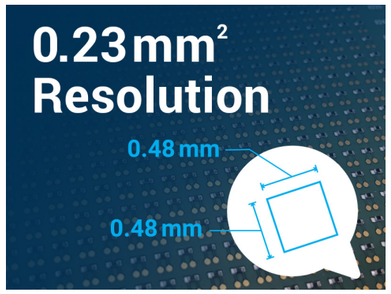
Unmatched Detector Resolution

Detector spacing and resolution measures field sizes down to 5 mm (5 diodes in 5 mm cone).



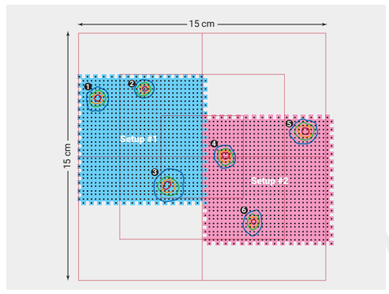
TG-218 Angular Dependence Support

Within SNC Patient software, patented angular corrections detect and adjust for translational offset between compared datasets, with precision of 0.1 mm. Results are film equivalent, meeting TG-218 requirement for angular dependencies to be accounted for in 2D arrays.



TG-101 Support

To minimize volume averaging errors, TG-101 suggests that SRS measurements should be performed with a detector <1mm. SRS MapCHECK supports this requirement with detectors well under the limit.



SRS MapCHECK Array Coverage

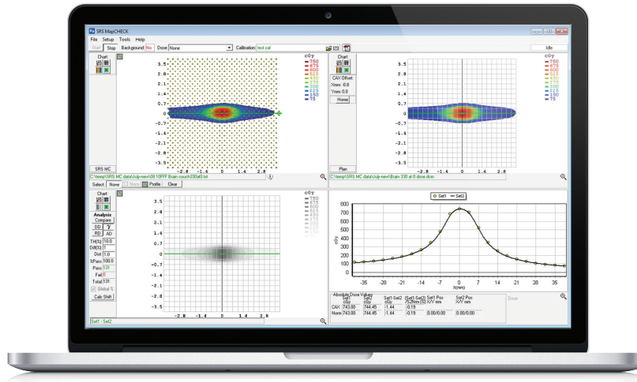
Because of its high density (1,013 SunPoint® 2 diodes in a 7.7 x 7.7 cm array) and small diodes (0.48 mm x 0.48 mm), SRS MapCHECK is ideal for performing Single-Isocenter Multiple-Target (SIMT) QA. Plus, the QA Setup Tool in SNC Patient software simplifies the task of determining shifts needed to capture all targets in as few setups as possible.

SNC Patient™ Software

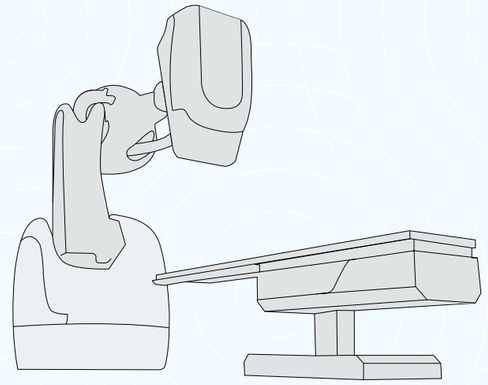
Real-Time Results

Simply import the QA files from your TPS and SNC Patient software compares the dose distribution of the treatment plan file to the actual measured values (absolute and relative dose).

- Provides the data necessary to meet AAPM TG-101 requirement of <1mm resolution and end-to-end testing annually for SBRT programs
- Detects and corrects for translational offset between compared datasets with precision of 0.1mm for SRS applications
- Supports Gamma Analysis[1] in absolute and relative dose mode with user-specified criteria with passing rates greater that 90% using 3% and 1mm, global, as compared to True Dose[2]
- Evaluates delivered dose with gantry and couch geometries as specified in the patient plan



- Optimization-based Calculation Shift algorithm supports co-registering measurements to planned dose with 6 degrees of freedom
- QA Setup Tool provides guidance for ideal setup for Single-Isocenter Multiple-Target (SIMT) plans

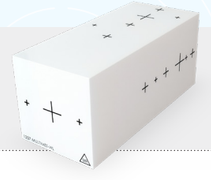


Comprehensive CyberKnife® Support

With the release SNC Patient v8.5, SRS MapCHECK is now the only device that offers both Patient and Machine QA on a CyberKnife System. Save both time and money by removing film from your Machine QA tasks.

CyberKnife Machine QA Testing

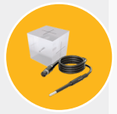
- MLC QA – Measures offsets from expected for 52 leaves at 5 positions, applies Bayouth test criteria, and saves enough time to do quantitative testing daily instead of monthly
- Iris Beam QA – Tests up to 11 diameters in just 5 minutes in a single measurement
- Targeting Accuracy QA (TAQA) – For detecting daily changes in targeting accuracy of the system, performed in <10 minutes per collimator, with 0.1 mm accuracy



Complement with the **MultiMet-WL Cube** to identify off-axis and rotational sources of error — Gantry, Couch or Collimator — in 6 degrees of freedom.

Streamline Your Workflow

CONVENTIONAL WORKFLOW



Measure Absolute Dose with Chamber/Electrometer and Compare to TPS Plan

Put on Gloves to Avoid Prints on Film

Cut Film to Size and Clean Film

Deliver Beam

Enter Room to Exchange Film for each Delivery

Wait 2+ Hours for Film to Develop[3]

Scan Film and Convert Image to Dose with Film Calibration

Compare Image Dose to TPS Plan

~300 MINUTES

If any of the film QA results fail, repeat the entire process from the beginning.

FILMLESS WORKFLOW WITH SRS MapCHECK

Insert SRS MapCHECK into StereoPHAN

Deliver Beam

Compare Absolute and Relative Dose to TPS Plan

~10 MINUTES

Specifications

SRS MapCHECK Specifications

Detector Type:	SunPoint® 2 Diode Detectors
Detector Quantity:	1,013
Detector Spacing (mm):	2.47
Active Detector Area (mm x mm):	0.48 x 0.48
Array Size (mm):	77 x 77
Detector Sensitivity (nC/Gy):	15
Sampling Frequency (ms):	50
Dose Rate Dependence:	+/- 1.0% (100 MU/min to 2400 MU/min)
Inherent Buildup (g/cm2):	2.75
Inherent Backscatter (g/cm2):	2.75
Radiation Measured:	Photons: 6MV, 10MV, 6FFF, 10FFF
Number of Connection Cables:	Single power/data cable
Dimensions (L/W/H):	320 x 105 x 45 (mm)
Weight (kg):	1.9

SRS MapCHECK Compatibility

Varian Medical Systems® and Elekta:	Supports C-arm (TrueBeam®, Edge®, VitalBeam, Trilogy™, C-Series, Versa, Synergy, Infinity, Axesse, Compact), Halcyon™, and Ethos™
Accuray:	Supports TomoTherapy®, Radixact® and Cyberknife®

StereoPHAN Specifications

Material:	Polymethyl methacrylate (PMMA)
Weight (cylinder, stand, slide):	6.6 kg (15 lbs)
Measurement cubes (mm):	85 x 85 x 85
Dimensions - L x W x H (mm):	522 x 276 x 229

System Requirements (SNC Patient)

Operating System:	Windows 10 Professional
CPU:	Recommended 2.4 GHz or better, multi-core (2 or more cores)
RAM:	Recommended 4 GB or more
Hard Drive Space:	Recommended 5 GB or more

“As our SRS program grew, we quickly realized that film was not going to cut it. The SRS MapCHECK is equivalent to film on a good film day and greatly exceeds it on a bad film day, all while saving significant time. The size of the array is sufficient, and the user-friendly software guides us through setup. We’ve measured up to 20 targets in one plan and confirmed each and every met was calculated accurately.”

Mark W Geurts, MS, DABR, CQE, Aspirus Regional Cancer Center

[1] *Ju, T., Simpson, T., Deasy, J. O., & Low, D. a. (2008). Geometric interpretation of the dose distribution comparison technique: Interpolation-free calculation. Medical Physics, 35(3), 879*

[2] *True Dose - determined from film measurements, calculations from commissioned treatment planning systems or other means acceptable in clinical practice*

[3] *http://www.gafchromic.com/documents/Efficient%20Protocols%20for%20Calibration%20and%20Dosimetry.pdf*

Sun Nuclear Headquarters (US)

Phone
+1 (321) 259-6862

Address
3275 Suntree Blvd,
Melbourne, FL 32940

Sun Nuclear Wisconsin (US)

Phone
+1 (800) 426-6391

Address
7600 Discovery Drive,
Middleton, WI 53562

Sun Nuclear CIRS, 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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A MIRION MEDICAL COMPANY

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