



ClearCalc

INDEPENDENT CALCULATION SOFTWARE



Intelligent Automation in Cancer Care

RAD formation

Intelligent secondary plan validation.

ClearCalc[®] is a secondary calculation software that independently verifies the accuracy of your treatment plan dose calculation. With support for photons, electrons, protons, and brachytherapy, results are quickly calculated and displayed on a user-friendly interface.

ClearCalc can be accessed as a Varian Eclipse Treatment Planning System (TPS) scripting plugin via ClearCheck[®] or as a Windows executable application, allowing full access for all users.

For clinicians. By clinicians.

ClearCalc was developed by physicists as an independent secondary monitor unit (MU) calculation to instantly verify treatment plan accuracy. With seamless ClearCheck integration, users obtain results without launching separate software. For those with other TPSs, DICOM exports allow for quick evaluation. Results may be automatically appended to the ClearCheck final plan report or printed to PDF, making documentation needs effortless.

Have confidence in your calculations and automate your plan evaluation workflow.

[Schedule a Demo](#)



ClearCalc

Rest assured knowing your plan calculations are accurate.



Multi-Modality
Compatibility



Automated Calculation
Point Selector



Eclipse
Integration



Direct ClearCheck
Reporting



Tissue Heterogeneity
Correction



Trajectory/Log File
Analysis



Monte Carlo
Algorithm

*Requires RadMonteCarlo



Full 3D Gamma
Analysis

*Requires RadMonteCarlo

Seamlessly Launch ClearCalc

Direct Eclipse Integration via ClearCheck

With the option for direct integration with Eclipse and ClearCheck, ClearCalc takes automating plan evaluation one step further by providing instant processing of secondary plan calculations and eliminating the hassle of importing or exporting DICOM plans. Customizable ClearCalc results can be automatically added to the ClearCheck report for the final plan printout with a single click.

Standalone Application

For users without Eclipse, a standalone ClearCalc application accepts DICOM plan files from multiple treatment planning systems. ClearCalc works with BrainLab, Accuray, ViewRay, Monaco, Oncentra, VariSeed, RayStation, Pinnacle, and more.

ClearCalc Secondary Calculation

Test, Patient (999999999a)	Course: C1
Birthdate: 11/22/2019	Plan: ProstateInit
Sex: Male	Dose: 180cGy x 25 = 4500cGy
Hospital: Radformation	Prescribed Percentage 100%
Eclipse Version: 15.5.11	100.00% covers 95.00% of Target Volume (Value: 106.175%)
	Status: PlanningApproved

Photon Properties

TPS Machine: Eclipse CAP	ClearCalc Machine: Eclipse CAP
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MU Results

Field ID	Calculation Point	TPS MU	ClearCalc MU	Difference	Pass/Fail	Comment
Field 6	Isocenter 1	80.1MU	80.8MU	0.87%	✓	
Field 5	Isocenter 1	69.7MU	71.0MU	1.87%	✓	
Field 4	Isocenter 1	72.5MU	74.1MU	2.21%	✓	
Field 3	Isocenter 1	77.2MU	77.9MU	0.91%	✓	
Field 2	Isocenter 1	77.2MU	75.4MU	-2.33%	✓	
Field 1	Isocenter 1	72.5MU	72.7MU	0.28%	✓	
Field 7	Isocenter 1	78.2MU	76.2MU	-2.56%	✓	

Calculation Point Doses

Calculation Point	TPS Dose	ClearCalc Dose	Difference	Pass/Fail	Comment
Isocenter 1 -0.04cm, -0.10cm, 18.41cm	185.4cGy	185.2cGy	-0.11%	✓	

Custom Point Selection

Plan Points
Toggle display of points from plan
 Isocenter 1

Display Options
Scroll using mouse wheel.
Zoom using Ctrl + Mouse wheel.
Pan using Ctrl + Left mouse click/hold
 Show dose wash
 Show central-axis field lines

Field MU Results
Use the per-field Locate button to view or edit assigned calculation point.
With the Locate button active, click the point in the CT viewer to assign a new field calculation point.

Field ID	Calculation Point	TPS MU	ClearCalc MU	Difference	Pass/Fail
Field 1	Isocenter 1	73.1MU	72.4MU	-0.96%	✓
Field 2	Isocenter 1	76.9MU	74.2MU	-3.51%	✓
Field 3	Isocenter 1	77.9MU	78.5MU	0.77%	✓
Field 4	Isocenter 1	73.1MU	74.5MU	1.92%	✓
Field 5	Isocenter 1	70.2MU	71.3MU	1.57%	✓
Field 6	Isocenter 1	78.8MU	78.4MU	-0.51%	✓
Field 7	Isocenter 1	78.8MU	76.2MU	-3.30%	✓

Calculation Point Doses
Select a row to view the calculation point location.

Calculation Point	Location [x, y, z]	TPS Dose	ClearCalc Dose	Difference	Pass/Fail
Isocenter 1	-0.04cm, -0.10cm, 18.41cm	185.4cGy	186.6cGy	0.64%	✓

With ClearCalc’s custom point selection tool for photon plans, an optimal calculation point is chosen automatically, avoiding heterogeneities and dose gradients. Alternatively, with a number of points generated and viewable on the patient’s CT within ClearCalc, selecting a point that makes the most sense for your department is simple. Just hover over alternative points, review point performance at-a-glance, and make your selection.

Point dose statistics are calculated for any target volumes and user-selected structures, providing valuable information beyond a single point comparison.

One Platform For All Your Second Check Needs

Photon Module

Photon Properties
TPS Machine
Eclipse CAP

MU Results

Field ID	Calculation Point	TPS MU	ClearCalc MU	Difference	Pass/Fail	Verify	Comment
Field 1	Isocenter 1	257.1MU	258.7MU	0.62%	✓		
Field 2	Isocenter 1	257.1MU	255.5MU	-0.62%	✓		

Calculation Point Doses
Click on a row to view doses per field.

Calculation Point	Location (x, y, z)	TPS Dose	ClearCalc Dose	Difference	Pass/Fail	Verify	Comment
Isocenter 1	-0.04cm, -0.10cm, 18.41cm	181.8cGy	181.9cGy	0.06%	✓		

[View/Hide Calculation Points](#) [Hide 3D Point Dose Statistics](#)

Disable heterogeneity calculation

3D Point Dose Statistics
Point dose results are displayed for all defined "Target" structures. Points are evaluated to the plan according to the tolerance set in ClearCalc Administration.

Structure	Points Evaluated	Passing	Failing	Mean TPS Dose ± Std Dev	Mean CC Dose ± Std Dev	Mean Diff ± Std Dev (%)	Mean Diff ± Std Dev	Passing Percentage	Pass/Fail
CTV	250	250	0	8273.6cGy ± 92.8cGy	8357.5cGy ± 146.9cGy	1.01% ± 0.98%	84.0cGy ± 81.4cGy	100.00%	✓
PTV	250	250	0	8231.7cGy ± 210.3cGy	8334.9cGy ± 232.2cGy	1.25% ± 1.03%	103.2cGy ± 84.8cGy	100.00%	✓
PTVHD	250	250	0	8231.7cGy ± 210.3cGy	8334.9cGy ± 232.2cGy	1.25% ± 1.03%	103.2cGy ± 84.8cGy	100.00%	✓

ClearCalc supports a full complement of clinical techniques, including 3DCRT, IMRT, VMAT, SBRT, SRS, virtual/dynamic wedges, and more. The hand calculation module allows for quick, manual verifications when needed.

The native custom finite-sized pencil beam (FSPB) algorithm ensures that calculations are fast and accurate, fully accounting for tissue inhomogeneities. The optional RadMonteCarlo module expands on the base ClearCalc functionality with extremely fast gold standard secondary Monte Carlo calculations and volumetric comparisons.

ClearCalc uses calculation methods outlined in AAPM TG-43. Incoming reference points are calculated and results are easy to interpret. Applicators, dwell positions, and dwell times are displayed for verification. User may now allow ClearCalc to automatically decay to a set treatment date for nominal sources.

Brachytherapy Module

Radioactive Source Model
192Ir-Source
GM121 Ir-192 HDR
GM121 Ir-192 HDR

Source Property	TPS	ClearCalc
Nominal air kerma strength (Gy)	40.3	40.3
Treatment air kerma strength (Gy)	2628.58	2628.58
Nominal activity (mCi)	9.602	9.602
Treatment activity (mCi)	645.643	645.643
Dose rate constant (Gy/hCi)	1.118	1.118
Active length (cm)	0.35	0.35

Calculation Point Doses

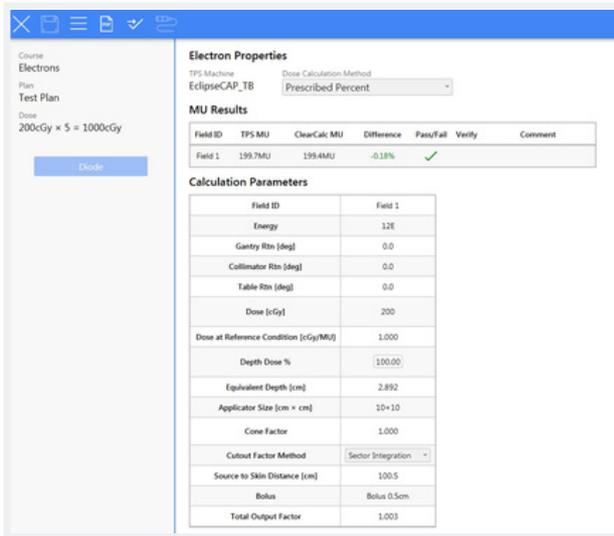
Calculation Point	Location	TPS Dose	ClearCalc Dose	Difference	Pass/Fail	Verify	Comment
CheckName	2.60cm, -1.94cm, 18.41cm	2383.6cGy	2387.7cGy	0.17%	✓		
Reference Line, pt. #1	3.84cm, -2.05cm, 19.86cm	2994cGy	2998.4cGy	0.15%	✓		
Reference Line, pt. #2	4.15cm, -2.05cm, 19.22cm	1620.6cGy	1621.8cGy	0.08%	✓		
Reference Line, pt. #3	4.11cm, -2.05cm, 18.37cm	2006.8cGy	2009.8cGy	0.15%	✓		
Reference Line, pt. #4	3.89cm, -2.05cm, 17.38cm	3127cGy	3135.7cGy	0.28%	✓		
Reference Line, pt. #5	3.55cm, -2.12cm, 17.12cm	4827.5cGy	4815.4cGy	-0.25%	✓		
Reference Line, pt. #6	3.21cm, -2.12cm, 16.50cm	1096.1cGy	1103.7cGy	0.69%	✓		

Treatment Plan Parameters

Channel 1				Channel 2			
Dwell Position	Nominal Dwell Time	Treatment Dwell Time	Location	Dwell Position	Nominal Dwell Time	Treatment Dwell Time	Location
120.0cm	1037.6s	141.0s	0.29cm, -1.96cm, 19.94cm	130.0cm	10717.9s	164.3s	3.60cm, -1.96cm, 19.94
125.5cm	10481.6s	160.7s	0.29cm, -1.96cm, 19.44cm	129.5cm	11874.3s	212.7s	3.58cm, -1.96cm, 19.44
129.0cm	11087.7s	170.0s	0.30cm, -1.96cm, 18.94cm	129.0cm	16193.1s	248.3s	3.56cm, -1.96cm, 18.94

One Platform For All Your Second Check Needs

Electron Module

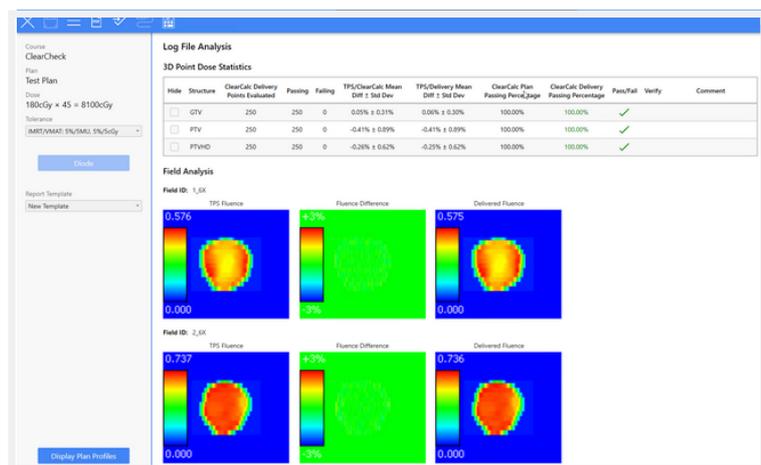


Electron plan evaluation is made simple using ClearCalc. Compute field doses to a prescribed percentage or choose a reference point. For cutout factors, users have the option to include the manual entry for each calculation, use ClearCalc's automated sector integration, or create a cutout factor library with specific cutout codes.

Quickly add another layer of accurate calculation with RadMonteCarlo.

Verify your patient-specific QA agreement from within ClearCalc using machine log file-based IMRT QA—without the Phantom.

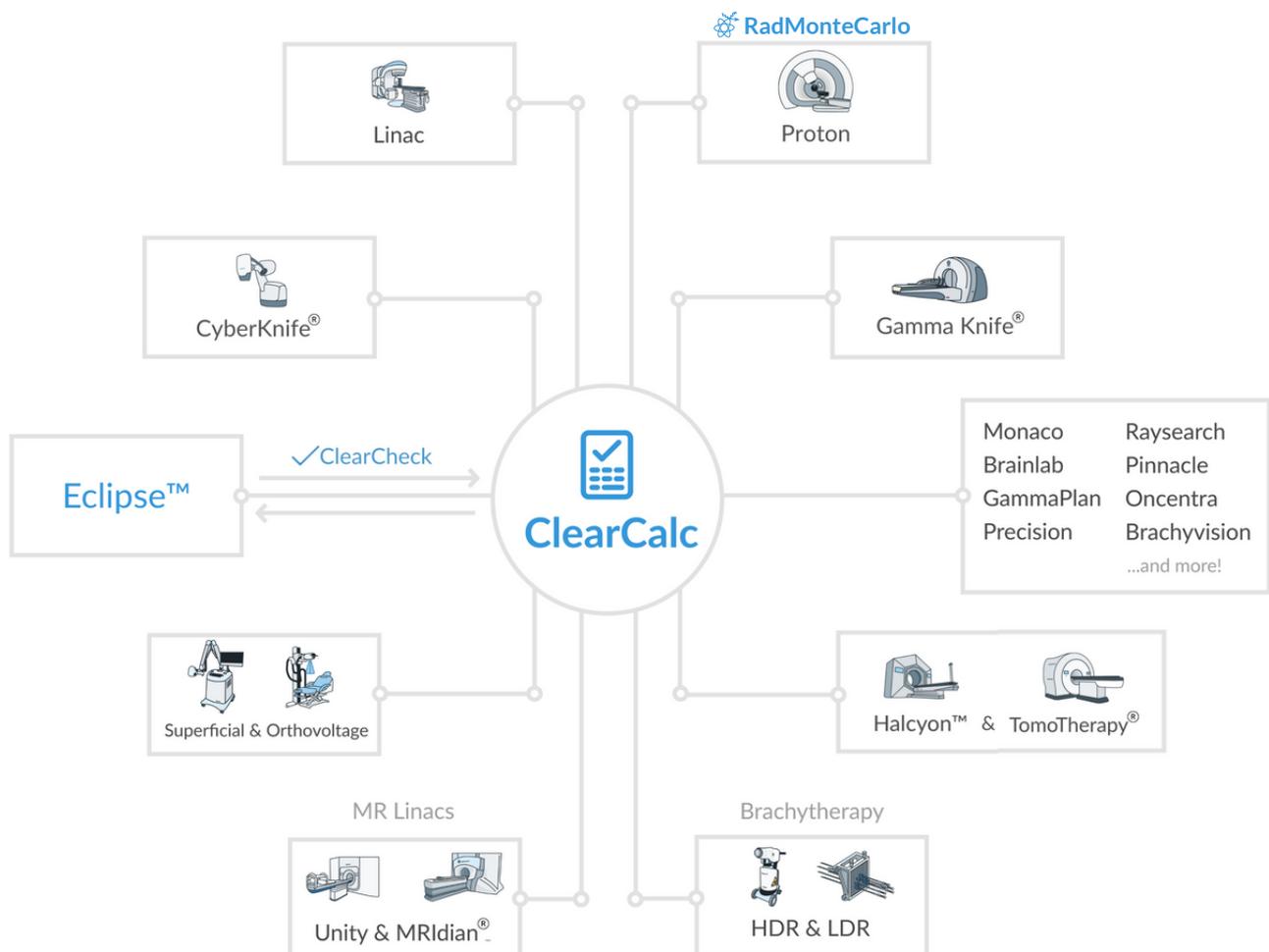
Trajectory and Dynalog File Analysis



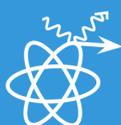
A Single Solution For All Machines in Your Department

ClearCalc provides fast and accurate independent calculation for a number of machines and treatment planning systems. Built for routine and challenging clinical plans alike, ClearCalc combines fast dose calculation with an intuitive design to make finalizing treatment plans easier than ever.

ClearCalc offers flexibility in mixed environments and is compatible with virtually any machine in your department, including CyberKnife, Gamma Knife, MRIdian, Elekta Unity, TomoTherapy, Halcyon, and scanning Proton Systems. ClearCalc works with nearly all treatment planning systems, including Eclipse, Monaco, RaySearch, Pinnacle, and Brainlab.



NEW!

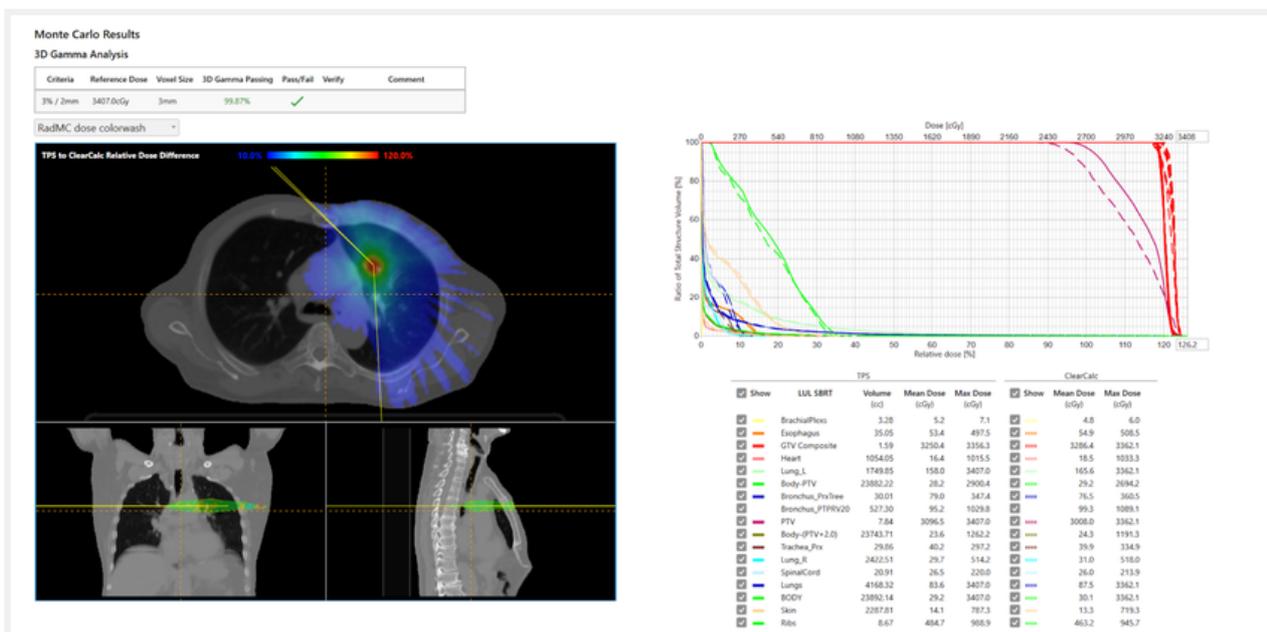


RadMonteCarlo™

Monte Carlo Secondary Calculation Software

RadMonteCarlo is an optional add-on to ClearCalc and is not included in a standard ClearCalc purchase. ClearCalc is a prerequisite to RadMonteCarlo.

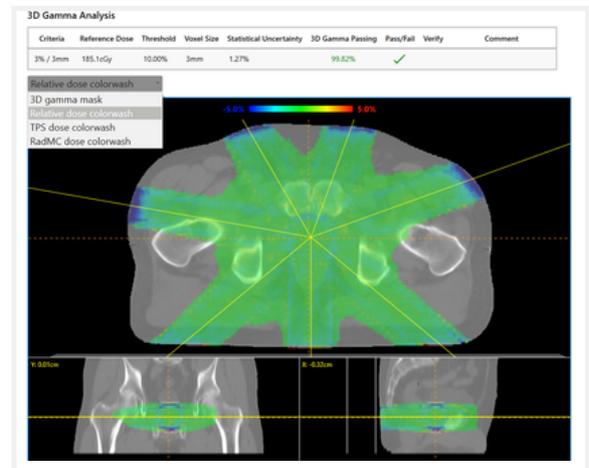
Combining fast dose calculation times with an intuitive design, RadMonteCarlo is built for routine and challenging clinical situations alike. An optional upgrade to the ClearCalc interface, RadMonteCarlo is a powerful Monte Carlo dose calculation tool that delivers incredibly accurate results faster than ever before.



RadMonteCarlo: Secondary Calculation Software

Why choose between speed and accuracy? Get the best of both worlds RadMonteCarlo. With the goal of calculating most clinical plans in under two minutes,* RadMonteCarlo delivers gold-standard calculations for photon, electron, and proton plans.

*Actual speed may vary and is dependent on plan field parameters, user upload/download speeds, and other possible variables.



A full 3D volumetric calculation provides comprehensive plan information that includes a 3D gamma analysis and a recalculated DVH for contoured structure comparison. With a 3-view CT with viewing options for Relative Dose Comparison, TPS Dose, RadMonteCarlo Dose, and 3D Gamma Mask, users have more visibility and control when analyzing the accuracy of their plan.

Proton Module

ClearCalc with RadMonteCarlo is available as an optional upgrade for proton therapy systems with modulated scanning beams. RadMonteCarlo proton calculations model both continuous and discrete interactions and converts the patient geometry to water using a hospital-specific conversion table. The fast dose calculation and intuitive design provide the accurate results you need to confidently deliver your most robust proton plans safely and efficiently.



Enhance and streamline your secondary calculations with ClearCalc and RadMonteCarlo.

- ✓ Full integration with Eclipse and ClearCheck streamlines planning workflows
- ✓ Accepts DICOM imports from multiple TPS vendors and machine types for flexibility in mixed environments
- ✓ Fast and accurate add-on Monte Carlo algorithm for gold-standard calculations
- ✓ 3D point dose statistics are calculated for target structures and any user-selected structures, providing insight into structure analytics
- ✓ Supports photons, protons, brachytherapy, electrons, superficial/orthovoltage, and more in a single solution

[Schedule a Demo](#)

ClearCalc simplifies workflows and gives users confidence in their final treatment plans, saving departments time and streamlining plan evaluation.