

RADCALC[®]

RadCalc[®] was developed by a board certified physicist to make the task of performing independent dosimetric validation calculations much faster, easier, and more accurate.

RadCalc[®] provides fully automated dosimetric calculations for IMRT, Conventional, SRS, and Brachytherapy plans along with the ability to import data from Radiation Therapy Planning systems and export data to Verify and Record system.

Since 1999, RadCalc[®] has provided physicists worldwide with the most comprehensive fully automated dosimetric validation system available today.

NOW A PART OF LAP

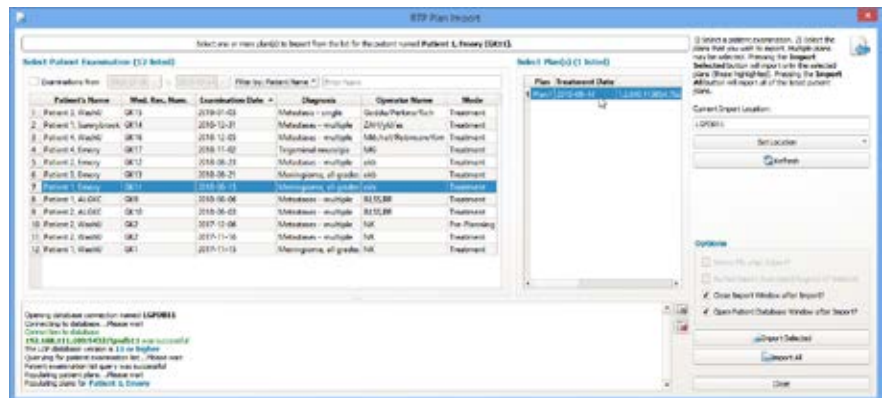
- RadCalc[®] by LifeLine Software Inc.
- Applied by more than 2,300 treatment centers
- Over 19 years of experience
- 98 % of RadCalc[®] users recommend it to others
- Independent dosimetric verification software

RADCALC[®]

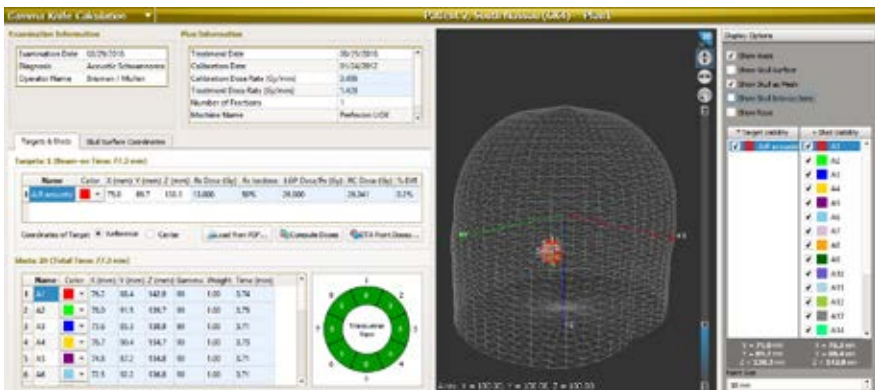
GAMMA KNIFE[®]

The Gamma Knife[®] module performs point dose verification calculations for the Model 4C, Perfexion[™], and Icon[™] treatment machines utilizing versions 10 and 11 of the Leksell GammaPlan[®] (LGP) planning system. This module provides many advanced features. Some of these features include the following:

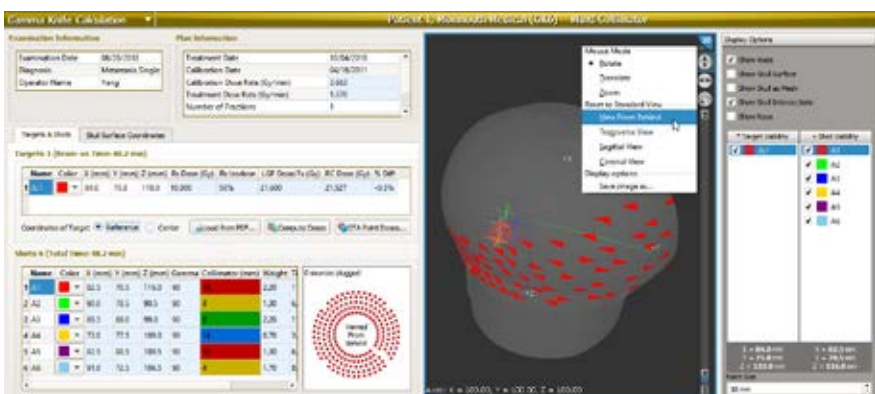
Plan Import – Gamma Knife[®] plans are imported using the RTP Plan Import dialog box via a read-only Elekta supported connection to the GammaPlan[®] database.

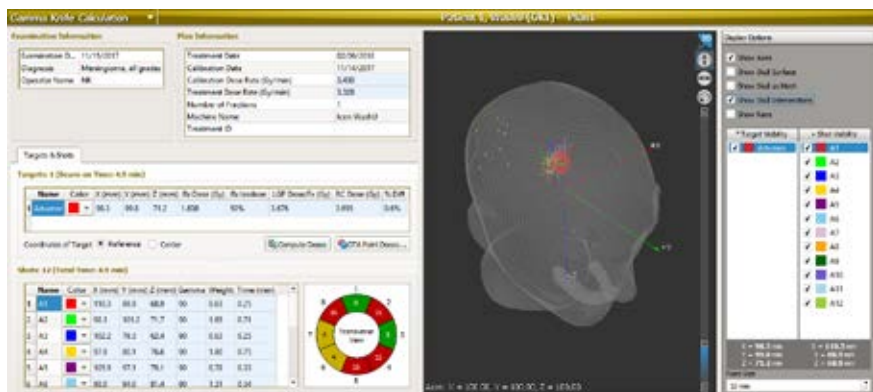


3D Visualization – A 3D visualization of the skull surface, target positions, and shot positions are shown in the calculation. The user may manipulate this 3D view by zooming, rotating, translating, or by selecting one of three standard views. Skull beamlet intersections and beamlet rays may be viewed within the 3D view.



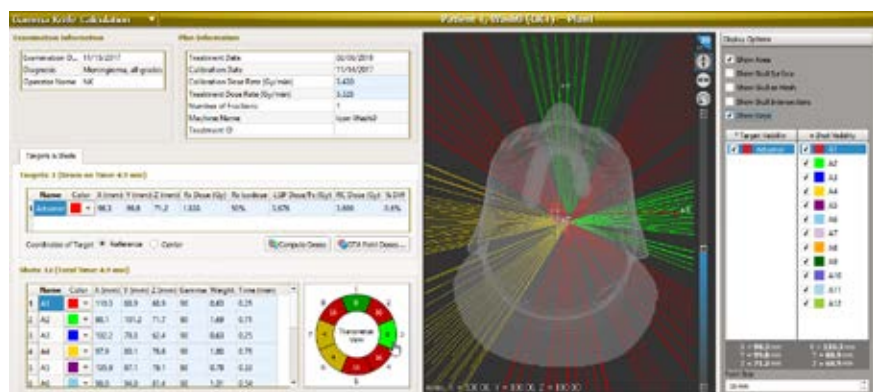
Model 4C Calculations (LGP 10 and earlier) – The skull surface is generated by the interpolation of the measurements from the Skull Scaling Instrument. Target coordinates may be manually entered or read from a PDF GammaPlan[®] report. The collimator size and plug pattern are imported and displayed in a "Viewed From Behind" plot for the selected shot.





Perflexion and Icon Calculations (LGP 10 or later) – Depending on the plan type, the skull surface will either be generated from the thresholded CT or MRI data stored in GammaPlan® or by the interpolation of the measurements from the Skull Scalar Instrument.

The target coordinates are automatically imported for LGP 11 plans. Target coordinates may be manually entered or loaded from a PDF for LGP 10 plans. The sector collimator size and blocked sector pattern is imported and displayed in a “Transverse” plot for the selected shot



Dose Computation – RadCalc® computes the dose and percent difference for each target utilizing proprietary TMR data, OAR data, and Source position information supplied by Elekta. Therefore, RadCalc® utilizes a virtual machine to perform the dose computation and no physics setup is necessary. The RadCalc® virtual machine automatically selects the data based upon the type of plan.



Cancer Center

Gamma Knife
DoseMetric Verification

Patient Name: Patient 1, Wadlu Patient ID#: 001
 Calibration Name: Plast
 Comments:
 Operator: ME Treatment ID:
 Diagnosis: Meningioma, all grades
 Machine Name: Sun View40
 Examination Date: 11/15/2017 Treatment Date: 02/06/2018 Calibration Date: 11/15/2017
 Effective Output Factors: (1) 0.834, (2) 0.905, (3) 1.000 Calibration Dose Rate: 3.430 Gy/min
 Beam-on Time: 4.9 min Num. Fractions: 1 Treatment Dose Rate: 3.222 Gy/min

Target - A: tumor

| Row | Col | Rx Dose (Gy) | Rx Isodose | LP Dose (Gy) | SC Dose (Gy) | % DTP | Center | Coordinates (X, Y, Z) mm |
|-----|-----|--------------|------------|--------------|--------------|-------|-----------|--------------------------|
| 1 | 1 | 1.00 | 50% | 3.43 | 3.43 | 0.4% | Reference | 88.3 88.8 75.2 |

Monitor: 12 (Total Beam: 4.9 min)

| Point | Coordinates (mm) | General | Weight | Time (sec) | Sector |
|-------|------------------|---------|--------|------------|--------|
| A1 | 110.7 88.3 88.2 | 30 | 1.00 | 0.75 | 1 |
| A2 | 90.1 112.2 71.2 | 30 | 1.00 | 0.71 | 2 |
| A3 | 80.2 79.3 82.4 | 30 | 1.00 | 0.71 | 3 |
| A4 | 112.0 88.1 76.5 | 30 | 1.00 | 0.71 | 4 |
| A5 | 98.9 101.1 76.1 | 30 | 1.00 | 0.71 | 5 |
| A6 | 98.0 110.0 81.8 | 30 | 1.00 | 0.91 | 6 |
| A7 | 88.1 88.8 76.8 | 30 | 1.00 | 0.71 | 7 |
| A8 | 90.8 89.2 83.2 | 30 | 1.00 | 0.78 | 8 |
| A9 | 94.9 79.2 87.7 | 30 | 1.00 | 0.78 | 9 |
| A10 | 111.7 89.2 83.8 | 30 | 1.00 | 0.42 | 10 |
| A11 | 98.9 101.2 84.4 | 30 | 1.00 | 0.78 | 11 |
| A12 | 91.8 89.3 88.2 | 30 | 1.00 | 0.71 | 12 |

Independence – RadCalc® stores and maintains its own copy of the Elekta proprietary data. The table lookup and interpolation process is separate from Elekta’s. External contour determination from Skull Scalar Instrument measurements or thresholded images is completely independent along with the ray-tracing process for depth determination. Additionally, the off axis computation is fully independent.

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|-----|-----|--------------|------------|--------------|--------------|-------|-----------|--------------------------|
| 1 | 1 | 1.00 | 50% | 3.43 | 3.43 | 0.4% | Reference | 88.3 88.8 75.2 |

Monitor: 12 (Total Beam: 4.9 min)

Calculated by: The Administrator 03/04/2018
 Checked by:
 Physician Signature:

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Distance To Agreement (DTA) Computation – It is possible to optionally configure RadCalc® to automatically select the best value from a 3D DTA point dose list if the computed dose is not within a specified threshold. You may also choose to automatically increase the Sampling Radius if the computed dose is not within the specified tolerance of the target dose.

Printouts

- Calculations can be printed in a Spreadsheet or Visual layout.
- An optional DTA Point Doses printout may be printed.
- The optional Skull Surface page contains a Custom View of the 3D visualization.

If you are interested in trying the Gamma Knife® Module, please contact our sales team for a free 30 day DEMO license and a price quote. You must be currently using RadCalc® version 6.4 or above in order to use this module.