The RIT Family of Products offer an impressive range of convenient packages that span from basic testing to the most complex analyses in Medical Physics.

<table>
<thead>
<tr>
<th>Package</th>
<th>Patient QA</th>
<th>Machine QA</th>
<th>MLC QA</th>
<th>Imaging QA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RIT Complete</strong></td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>All of RIT’s therapy products in one convenient and comprehensive package</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RIT Classic</strong></td>
<td>[ ]</td>
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<td>[ ]</td>
</tr>
<tr>
<td>The original RIT product, combining patient and machine QA</td>
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<td></td>
</tr>
<tr>
<td><strong>RIT G142</strong></td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>All of the machine and imaging tests for TG-142, in a ‘just-what-you-need’ package</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>RIT G148+</strong></td>
<td>[ ]</td>
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</tr>
<tr>
<td>A comprehensive test suite for helical TomoTherapy® machines</td>
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</tr>
<tr>
<td><strong>RIT G135</strong></td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>A comprehensive test suite for all CyberKnife® machine QA</td>
<td></td>
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<tr>
<td><strong>RIT Film</strong></td>
<td>[ ]</td>
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<td>[ ]</td>
</tr>
<tr>
<td>Full suite of film dosimetry routines, including patient and basic machine QA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Kadia therapy</strong></td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td><strong>Kadia diagnostic</strong></td>
<td>[ ]</td>
<td>[ ]</td>
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<td>[ ]</td>
</tr>
<tr>
<td>Automated phantom analysis for QC of Therapeutic and Diagnostic imagers (Not detailed within this brochure.)</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

There are international and U.S. versions of most products. Some features available in the international versions will not be available in the U.S. version. Features not available in all software configurations are noted.

TomoTherapy® and CyberKnife® are registered trademarks of Accuray, Inc.
The RIT Family
OF PRODUCTS

MACHINE QA

3D Stereotactic Alignment Test (Isocenter Optimization)
Automatically process a set of EPID Winston-Lutz images to give a fast, accurate measurement of isocenter position. RIT’s version of this classic test allows you to use 3-16 images. It not only gives you an accurate measurement of isocenter displacement, but also an error estimate to determine the wobble around the isocenter and ball setup error. The accuracy of this test surpasses half of a pixel.
(Patents: US 9192784, CA 2918045, and JP 6009705)

Stereotactic Cone Profiles

Stereotactic Alignment
Stereotactic images may be analyzed without applying a calibration file. Winston-Lutz images are supported.

Field Alignment
This routine features improved alignment routine for low contrast cones.

Gibbs Cone Analysis
Measures the cone wobble when using a single cone (repeated), or cone center shift when using multiple cones. This routine provides an accurate test of either the cone wobble, collimator walkout (if the collimator is rotated during the test), or both.

BEAM MEASUREMENTS

Star Shot Analysis
Star shot and stereotactic images may be analyzed without applying a calibration file. To make MLC star shot patterns from EPID images, perform the MLC star shot test using the RIT Image Compositor.

Radiation/Light Field Coincidence
Radiation/Light Field EPID images may be analyzed without applying a calibration file. You can also have custom field sizes, not just 5, 10, 15, and 20 cm, and take a BB or pinprick for center location or use RIT’s L-Rad Phantom.

Asymmetric Field/Matchline

Depth Dose Profiles
Measure DMAX, D10, D50, and other statistics.

Cross Profiles
Measure PWHM, Penumbra, Flatness, Symmetry and other statistics.

Orthogonal Profiles
<table>
<thead>
<tr>
<th>Feature</th>
<th>RIT Complete</th>
<th>RIT Classic</th>
<th>RITG142</th>
<th>RITG148+</th>
<th>RITG135</th>
<th>RIT Film</th>
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<tbody>
<tr>
<td>Electron Energy</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Use this routine for TG25 and other measurements.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Quick Flatness and Symmetry</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Perform a fully-automated routine for monthly QA.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Isodose Contours</td>
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<tr>
<td>Import Tomo “DICOM” Film Files</td>
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<tr>
<td>Water Tank Beam Measurement Analysis</td>
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<td>Image Histogram</td>
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<td>3D Dose Profile</td>
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<tr>
<td><strong>TOMOTHERAPY®</strong></td>
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<tr>
<td>Beam Planarity and Jaw Twist</td>
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<tr>
<td>Overhead Laser Position Tool</td>
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<td>Import TomoTherapy® Calibration Files</td>
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<tr>
<td>Static Gantry Angle Tool</td>
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<tr>
<td>Helical Gantry Angle Tool</td>
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<td>✓</td>
<td>✓</td>
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<tr>
<td>Field Center vs. Jaw Setting Tool</td>
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<td>✓</td>
<td>✓</td>
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<td>Couch Translation/Gantry Rotation</td>
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<td>✓</td>
<td>✓</td>
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<td>Interrupted Treatment</td>
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<tr>
<td>MLC Center of Rotation Tool</td>
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<td>Vidar TIFF Export</td>
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</tr>
</tbody>
</table>
# The RIT Family of Products

**The RIT Family of Products:**

MEDICAL PHYSICS’ LEADING QA SOFTWARE FOR OVER 25 YEARS

---

## CyberKnife® & All Robotic Radiosurgery

<table>
<thead>
<tr>
<th>Test Type</th>
<th>RIT Complete</th>
<th>RIT Classic</th>
<th>RIT G142+</th>
<th>RIT G135</th>
<th>RIT Film</th>
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<tbody>
<tr>
<td>End-to-End Test</td>
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<td>AQA Test</td>
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<tr>
<td>Iris Test</td>
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<tr>
<td>Fully-Automated MLC Test for the M6 Collimator</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
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</tbody>
</table>

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## Patient QA

RunQueueA Automated Batch Analysis

Automate your patient QA by setting up scripts for your repetitive Patient QA workflows. Automated matching and sorting of Reference and Target images, along with thumbnail of all images simultaneously.

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## IMRT, IGRT & RapidArc®/VMAT Analysis

<table>
<thead>
<tr>
<th>Test Type</th>
<th>RIT Complete</th>
<th>RIT Classic</th>
<th>RIT G142+</th>
<th>RIT G135</th>
<th>RIT Film</th>
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<tbody>
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<td>Gamma Function</td>
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<td>Profiles</td>
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<td>Van Dyk’s Analysis</td>
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<tr>
<td>Subtraction</td>
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<tr>
<td>Isodose Curves</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
**Addition**

**Centroid Measurement**
Compare two images and measure any shift within the centroids.

**IGRT Alignment**
Measure the spatial misalignment between the IGRT imaging system and the treatment beam.

**Register Template**

**IMRT Automatic Fine Tune Registration**

**Bilinear Interpolation and Non-Cropping Rotation**

**Automated Registration**
Simultaneously perform fully-automated registration control point positioning in both traditional and RunQueueA IMRT.

**TomoTherapy® Registration**
Easily perform exact dose comparisons for TomoTherapy® Patient QA. The analysis uses a TomoTherapy® plan, a dose map, and a film to determine position and dose accuracy, using the red lasers. Coronal or Sagittal slices may be analyzed. Compatible with the following treatment planning systems: Accuray TomoTherapy® 5.1.3, Precision® 1.1.0, and Precision® 2.0.0.

**Proportion Passing Plot**
Plot the proportion passing for a range of subtraction tolerances.

**Save Case Files from IMRT Analysis Toolbars**
Archive image sets and send IMRT results to other RIT users or Technical Support.

**Save and Restore IMRT Analysis Layouts**

**Plan-Based Calibration**
Make quick relative comparisons between any dose map and your EPID, Film, and CR images.

The RIT Family
OF PRODUCTS

2D DETECTOR ARRAY ANALYSIS

Import from 2D Arrays
Ion Chamber arrays from IBA and PTW and MapCHECK® diode arrays are supported. IMRT analysis routines have been revised to handle sparse data. Results can be saved as a RIT Array Case file.

CALIBRATION

Daily Output Factor Adjustment for Calibration Curves

MLC Calibration Technique

2D Scanner Spatial Calibration for Both Vidar and Flatbed Scanners

Perpendicular Dose Calibration

iView™ Calibration

Parallel Dose Calibration

Optical Density (OD) Calibration

Kodak CR Perpendicular Calibration

Kodak CR Spatial Calibration

PDD Table Editor

Calibration File Merge
## MLC QA

### RIT EPID Picket Fence
This routine is a completely automated version of the classic picket fence test.

### Hancock Tests for Elekta
The Hancock tests (2 Image Hancock Test, 4 Image Hancock Test, and Hancock Test with Backup Jaws) are designed to use the Elekta iView™ imager to produce a series of images to automatically measure leaf position against a measured isocenter position. For MLC’s with backup jaws, the test also measures the jaw position in relation to isocenter and the jaw leaf setback measurement. The RIT system can use JPEG or HIS images from the iViewGT™ system.

### Elekta Leaf Speed Test
The Elekta EPID Leaf Speed Test aligns two images to analyze the consistency of the leaf speed. This routine is also available for the Agility™ MLC. The test images are loaded by default as type Elekta iView™ EPID (*.dcm,*.jpg,*.his).

### Varian Leaf Speed Test
The Varian MLC EPID Leaf Speed Test measures the consistency and accuracy of the MLC leaf speeds as they move across an imager. It does not use the log files.

### Automated Analysis of Varian RapidArc® Tests
Images may be taken at any distance from EPID, Film, or CR images.

### Bayouthe MLC Analysis
Analyze MLCs that require leaf gaps between banks.

### Memorial Sloan Kettering Test Pattern

### MLC Transmission Analysis (TG50 Recommended)

### TG50 Picket Fence

### Varian DMLC Test Pattern Analysis

### CyberKnife® MLC QA
Perform a fully-automated “Garden Fence” MLC test for the M6 Collimator. The software will (1) automatically crop the image; (2) automatically align the image; (3) perform automatic orientation of any images that are rotated or flipped; (4) automatically detect any leaves, eliminating any need for template files; and (5) perform the analysis.
The RIT Family
OF PRODUCTS

IMAGING QA

### Cerberus - Hands-Free Phantom Analysis

Cerberus constantly operates in the background of your workstation, automatically monitoring folders and pin-pointing specific files to process and analyze. It can match any set criteria, such as file naming patterns, DICOM tag matches, or file types. Cerberus automatically performs analyses, generates reports, and shares data to RITrend™, using specific parameters set in your customized preference profiles (including tolerances) to analyze the images for all of your machines.

### RITCognition - Fully-Automated Image Classification

RITCognition® performs true, independent, and automatic image classification. Using a series of discrimination routines, the software determines the correct phantom associated with each image, enabling true automation in RIT's image analysis routines. The RITCognition® system continuously updates itself to improve the discrimination accuracy of its classification models. (US Patent 9466012)

### Custom Tolerance Management

Use the Tolerance Manager to set tolerance values and pass/fail criteria for every measurement used in all automated phantom analyses.

### Planar kV Imaging Module

<table>
<thead>
<tr>
<th>Device</th>
<th>Calibration</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISC Plus</td>
<td>PTW NORM®-4</td>
</tr>
<tr>
<td>IBA Primus® L</td>
<td>Leeds TOR-18 FG</td>
</tr>
<tr>
<td>QC-kV1</td>
<td></td>
</tr>
</tbody>
</table>

### MV (EPID) Imager

- RIT EPID
- PTW EPID QC
- Las Vegas
- QC-3

### CBCT/MVCT Module

- Catphan® 504 - Varian
- Catphan® 503 - Elekta XVI
- Catphan® 604 - Varian
- Siemens MVCT

### Electron Density / Tissue Characterization Module

- CIRS 062M
- CIRS 062MA
- Gammex 467

### Tomotherapy Cheese

### IGRT kV/MV Coincidence Routines

- ISOCube™ kV-MV Isocenter Coincidence
- ISOCube™ CBCT Isocenter Coincidence
- ISOCube™ kV Collimation
- ISOCube™ MV Collimation / Light Field
- ISOCube™ 6 Degree-of-Freedom Couch Test

### Penta-Guide Phantom
## GENERAL FEATURES

### Image Compositor
GUI interface for easily making composite images. Add together images for use in MLC QA, Stereotactic QA, and large field IMRT analysis. Primarily used for EPID images but can be used on all image types. Supports a number of other operations: Add, subtract, multiply, divide, and other operations including scaling.

### Pin Prick, Erase, and ROI Tools

### PDF Reports for Every Analysis Routine
Easily export any analysis routine as a PDF report with a single click. Reports can be customized to display only information that is desired.

### Easy, Cloud-Based Software License Management
RIT uses a software license manager from Flexera, the leading manufacturer of license managers in the world. Choose from two convenient license models, floating (usable on any machine) or node-locked (tied to a specific machine). Easily manage licenses on the FlexNet License User Portal.

### Support of 3D Gels and Solids

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## EPID

### Importing EPID Images for QA
Use your Elekta, Varian or Siemens EPID for QA with a seamless interface that does not require additional manufacturer hardware and software.

### EPID Calibration
RIT’s patented Plan-Based Calibration routine gives you the ability to make quick relative comparisons between any dose map and your EPID, F|ILM or CR.

### Elekta iView™ Calibration

### Scale DICOM Images from Varian EPIDs
Some Varian EPID images may contain scaling information to restore dose information. If this feature is enabled (in Preferences), the Varian aS Portal Image Interface will detect these parameters and restore the EPID image. An optional scaling factor may also be applied.
### FILM DOSIMETRY FOR QA

**Radiochromic and Radiographic Film with Vidar and Flatbed Scanners**

**EBTX and Flatbed Scanner Correction**
Correct EBT film scanned on a flatbed scanner for: Red/Blue channel correction AND scanner flatness and uniformity. A dose calibration file is also created all from one image set. Utilizes RIT’s patented Plan-Based Calibration to develop optimized calibration curves.

**Radiochromic Film Uniformity Correction**

**Automated 21-Point Film Processor Correction**
(Patents: EP 1252550, CA 2396952, JP 3817176, and US 6528803)

**Sensitometry**
(Patents: EP 1252550, CA 2396952, JP 3817176, and US 6528803)

**2D Scanner Spatial Calibration for Vidar and Flatbed Scanners**

**Generic Image File Import**
Importing generic JPEG, TIFF and Bitmap image files from sources other than your Vidar Scanner gives you increased flexibility in your workflow to use RIT’s exclusive analysis routines. This feature is perfect for flatbed scanners.

**Vidar Advantage Pro 180° Correction**
For use on Advantage Pro RED units only: Corrects for sloping profile from left side to center; Works with film up to 10” wide and improves flatness by a factor of 2 to 4.

**Vidar Scanner Interface (Vidar Scanner Control Center)**
This feature allows for multiple film scanning, auto-naming, and auto-cropping, auto-flipping, and preview of scanned images
REPORING & DATA MANAGEMENT

RIT Trend™ Statistical Trend Database

Set your own specifications and RIT Trend™ automatically analyzes process control limits on equipment analyzed with RIT software. The Multi-Source Data Manager gives you even more control for reporting on your entire Medical Physics program. Its customizable format allows you to add analysis data from any and all equipment used in your Medical Physics program, including data not originally analyzed with RIT software. RIT Trend™ redefines database recording into a major tool for analysis and record-keeping in your department.

RIT Mirror Trend Comparison

Compare your results with other centers around the world with RIT Mirror. Anonymously upload your test results to RIT’s Mirror server to compare your data to that of other treatment centers using a wide variety of filtering tools.
Choose the software package that best suits your needs:

**RIT Complete**

**Product Description:**
All of RIT’s therapy products in one convenient and comprehensive package.

**Quality Assurance:**
Patient QA, Machine QA, MLC QA, Imaging QA

**The ideal software package for:**
Medical physicists that perform various types of QA and QC measurements on a variety of machines, including both linear accelerators and imaging devices.

---

**RITg148**

**Product Description:**
A comprehensive test suite for helical TomoTherapy® machines, in accordance with TG-148.

**Quality Assurance:**
Machine QA, Imaging QA

**The ideal software package for:**
Medical physicists and/or centers that use only a TomoTherapy® or Radixact™ machine, performing daily, monthly, and annual QA.

---

**RIT Classic**

**Product Description:**
The original RIT product package that combines Machine QA (including MLC QA) and Patient QA.

**Quality Assurance:**
Patient QA, Machine QA, MLC QA

**The ideal software package for:**
Medical physicists that require a single QA software solution for their linear accelerator(s) and for intensity-modulated radiation therapy (IMRT) procedures.

---

**RITg135**

**Product Description:**
A comprehensive test suite for CyberKnife® and all robotic radiosurgery, in accordance with TG-135.

**Quality Assurance:**
Machine QA, MLC QA

**The ideal software package for:**
Medical physicists and/or centers that use a only a CyberKnife® machine, specifically one with an M6 collimator, performing daily, monthly, and annual QA.

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**RIT Film**

**Product Description:**
RIT’s basic film analysis package for patient QA and partial machine QA measurements.

**Quality Assurance:**
Patient QA, Machine QA (Partial)

**The ideal software package for:**
Medical physicists that require a single software solution for film dosimetry and basic QA.

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To learn more:
- **Call:** +1.719.590.1077, Option 4
- **Email:** sales@radimage.com
- **Request a Demonstration:** www2.radimage.com/demo
- **Request a Personalized Quote:** www2.radimage.com/quote