FAST, PRECISE

Software for accurate and independent verification of monitor units, dose, and overall validity of standard, IMRT, rotational or brachytherapy plans – no film, no phantoms, no linac time required
In **Fast, Accurate** Plan Verification

The **Model** Makes the Difference

In traditional radiation therapy, ‘hand-calculation’ has become an accepted practice for verifying beams and doses. Though similar, the process for verifying IMRT or rotational (RapidArc™ or VMAT) delivery is much more complex. Dynamic MLC delivery creates hundreds of small fields that are extremely difficult to ‘hand-calculate’. Additionally, IMRT that involves film, phantoms or other measurement devices can often take up to two hours per patient to perform.

IMSure QA Software uses algorithms, including the patented 3-Source Model, to greatly reduce the time required to conduct IMRT and rotational delivery QA, without the need for film, phantoms or linac time.

Developed at Stanford University, the 3-Source Model accurately calculates the head or collimator scatter (Sc) contribution to linear accelerator output. This model works for any field size and shape, and for any point within the field, by accounting for:

- 1) the scatter from the primary photon source
- 2) the scatter from the flattening filter
- 3) the scatter from the main collimators

Incorporating these secondary check features into your QA processes will provide concise, confident verification of plans saved in the R&V system, while potentially helping avoid clinically significant errors.
The 3-Source Model

In this illustration of a linac head, the red beam represents the primary photon source and the white lines show radiation scattered by the main collimator and the flattening filter. Much of this scattered radiation stays in the head but some reaches the patient through the jaws and the multi-leaf collimator. This scattered radiation can contribute up to 12% of the dose the patient receives. IMSure QA is the only dose calculation software that uses the patented 3-Source Algorithm to accurately calculate the contribution to dose from all three of these sources.
Easy Monitor Unit Verification

Non-IMRT plans for both photon and electron beams are easy to verify in IMSure QA. The information you need to verify your plan is shown on a single screen. Imported information is automatically filled in or you can enter the information for each beam manually to create simple plans. Support for open beams, beams with blocks and wedged beams including the Varian Enhanced Dynamic Wedge, Elekta Omni Wedge and Siemens Virtual wedge is included.

Simplify and automate hand calculations

Advanced Features

IMSure QA Software includes many advanced features allowing you to streamline your plan QA.

- In-vivo measurement support – IMSure QA automatically calculates an expected reading for a diode placed at the surface in relation to the isocenter or any valid calculation point. A printable comprehensive setup report allows for easy setup and reporting of measured results
- Multiple calculation points – Import up to 30 points of interest from your treatment planning system or manually enter for more complete plan evaluation
- Block editor – An interactive block editor allows for the creation of standard or island blocks or editing of block shapes imported from your treatment planning system
**Structures**

Importing the structure set along with your plan allows for better visualization of your plan data. Utilize contours to draw blocks for tissue sparing or to account for missing tissue (flash).

**.decimal** Compensator Support

Utilizing a full convolution algorithm, IMSure models the scatter, beam hardening effects and field-size dependencies to calculate a true compensator factor for even the most complex .decimal filters.

**Cyberknife** Plan Verification Module

The Cyberknife module quickly and easily validates monitor units and dose for Raytrace and Monte Carlo plans created on the MultiPlan® treatment planning system. Color coding allows you to immediately recognize individual projections that are outside of user settable deviations.

**Thorough Stereotactic QA**

Calculate and confirm cone-based or MLC-based stereotactic treatments, including conformal arcs. Create specific energies in physics module to accurately model small fields found in stereotactic plans.
Fast IMRT, RapidArc™ and VMAT Dose Verification

The IMSure QA Software 3-Source Model delivers an accurate secondary check of your treatment plan quickly and easily. Only two steps, and less than a minute, are needed to perform a dose calculation with IMSure QA. Click the ‘Import Plan’ button, and choose your patient treatment plan. Then click the ‘Calculate Dose’ button, and you are ready to analyze the results.

The patented Stanford University 3-Source Model considers the dose from the primary photon source, the primary collimator scatter, and the flattening filter scatter, resulting in extremely accurate dose calculations, including those in high-gradient/low-dose regions common in IMRT.

Save time and increase accuracy

Comprehensive Verification of Your Entire Plan

Does checking a single point constitute good QA? In classic IMRT QA protocol a phantom is placed on the couch with an ion chamber to check point dose and film is placed in between the phantom slabs to measure fluence for an overall plan evaluation. IMSure QA is the only software of its kind that can complete both parts of the classic IMRT protocol, point dose verification and a fluence check.

With multiple calculation point support, IMSure allows you to place up to 30 ‘virtual’ chambers anywhere in the field to sample up to 30 point doses, plus IMSure will import the fluence from your treatment planning system and directly compare that to an independently calculated fluence for comprehensive verification of your entire plan.

Structure Specific Analysis

Importing the structure set along with your plan allows for better visualization of your plan data. Utilize the Volumes control to analyze your plan based on anatomical structures of interest such as the PTV or a critical structure for in-depth analysis of your plan.
RapidArc Plan Calculation Simplified

The ARC QA Tool helps limit the complex calculations associated with RapidArc plans by splitting DICOM-RT plan files into user-defined sub-arcs. The sub-arcs allow for accurate SSD and effective depth values that provide better agreement than full arc calculations.

- **Full Plan Evaluation for RapidArc**
  
  Reset gantry, collimator and couch angles to 0, mimicking a multi-field IMRT plan, allowing for the creation of fluence maps for each sub-beam. IMSure then conducts a full evaluation of the plan, including a fluence comparison.

- **Split Plans for Measured QA**
  
  After the gantry, collimator and couch angles are set to 0, the resulting split plan is ideal for delivering to a 2D array, EPID or film for measured QA.

- **Reimburse for Verification**
  
  The 77300 code for basic dosimetry calculations can be billed for each field for which a calculation is performed.

Physics is easy with IMSure QA

The Physics Interface for IMSure QA, like the rest of the software, is designed for ease-of-use. Linear accelerator data can be viewed in either tabular or graphical format in a single screen with an intuitive hierarchical design.

IMSure QA relies on your linear accelerator parameters to simulate dose delivery. Therefore, you already have the data needed to set up IMSure from the last time you commissioned your machine. For photons you need: Tissue Maximum Ratios (TMR), Off-axis Ratios (OAR), Output Factors (OF) and Head Scatter (Sc). For electrons you need: Percent Depth Dose (PDD), Off-axis Ratios (OAR) and Cone-Factors (CF).

Simply set up the data in the IMSure QA format and import. A comprehensive guide and sample data sets are included to direct you in formatting your data for import. If you prefer to have your data set up for you, Standard Imaging will perform this service free for up to three linacs.
Comprehensive Report Formats

Print comprehensive reports of your calculation results for attachment to the patient record or export to a PDF file for use with electronic record keeping.

Visit www.standardimaging.com or call 800-261-4446 for more details.

**IMSure QA Software (REF 91326) Specifications**

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Hard Drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows® XP</td>
<td>50 MB or greater</td>
</tr>
<tr>
<td>Windows Vista®</td>
<td></td>
</tr>
<tr>
<td>Windows® 7</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Processor</th>
<th>Screen Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® or AMD®, 600 MHz or greater</td>
<td>1024 x 768 or higher</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory</th>
<th>CD-ROM Drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>256 MB or greater</td>
<td>2X speed or greater</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designed to meet IEC 60601-1-4</td>
</tr>
</tbody>
</table>

Windows® and Windows Vista® are registered trademarks of Microsoft Corporation. Specifications subject to change without notice.

**MiniPhantom Detection System (REF 72195)**

MINIPHANTOM (REF 72194) for the Exradin® A12 Farmer-type Ion Chamber

MINIPHANTOM STAND/IN-AIR COMPARISON JIG (REF 72193)

**Performance Validation**


The Brachytherapy Module, available as an add-on component to IMSure version 3.3, imports DICOM-RT plan files from treatment planning systems and utilizes the TG-43 formulism for dose calculations (Comparison to plan is in percentage difference).

**Visualize Sources in 3D**

View calculation reference points and sources, including catheters and dwell positions, in three dimensions with keyboard shortcuts for viewing orthogonal, sagittal, transverse and coronal planes.

**In-depth Analysis of Each Dwell Position**

Choose the calculation point and dwell position of interest and each will be highlighted in the 3D view. The dose contribution to the chosen calculation point and corresponding dwell position is shown along with the factors used in the calculation enabling easy analysis of every facet of the plan.

**Automatic Decay of Source Strength**

Choose whether to calculate the dose based on the reference source strength stored in the source library or at the source strength at any date and time specified, including the time of implantation.