INTEGRATED QUALITY ASSURANCE

Solutions Overview

IBA Dosimetry – Who We Are

Protect, Enhance and Save Lives

At IBA we share ideas and know-how with our customers and partners to provide innovative solutions for the diagnosis and treatment of cancer. We care about the well-being of patients, as well as the safe and efficient work of healthcare professionals. Together we achieve our mission to Protect, Enhance and Save Lives.

IBA Dosimetry offers a full range of integrated and innovative solutions for Quality Assurance (QA), calibration procedures, and imaging markers, as well as services that maximize efficiency and patient safety in Radiation Therapy and Medical Imaging.

Both in radiation therapy and medical imaging applications, radiation has to be applied wisely and carefully. In medical imaging, the goal is to minimize the imaging radiation dose given to the patient while improving image quality. In radiation therapy, the goal is to focus a high dose of cancer-killing radiation with pinpoint accuracy on the tumor mass, while sparing healthy tissues. IBA Dosimetry is the leading partner of over 10,000 healthcare professionals to ensure better diagnosis and safer patient treatments.
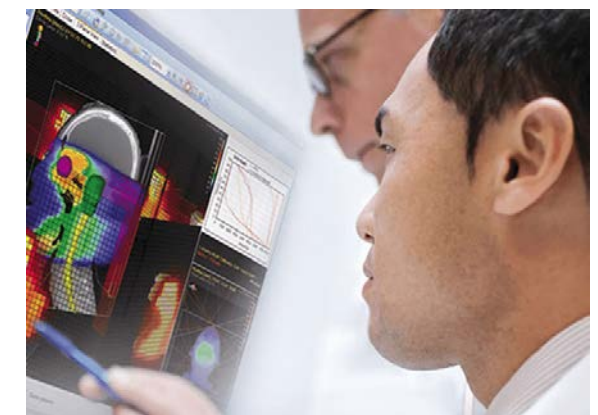
Integrated Quality Assurance with myQA®

At IBA Dosimetry, we innovate radiation therapy and diagnostics through Integrated Quality Assurance solutions that are efficient, intuitive, and provide peace of mind!
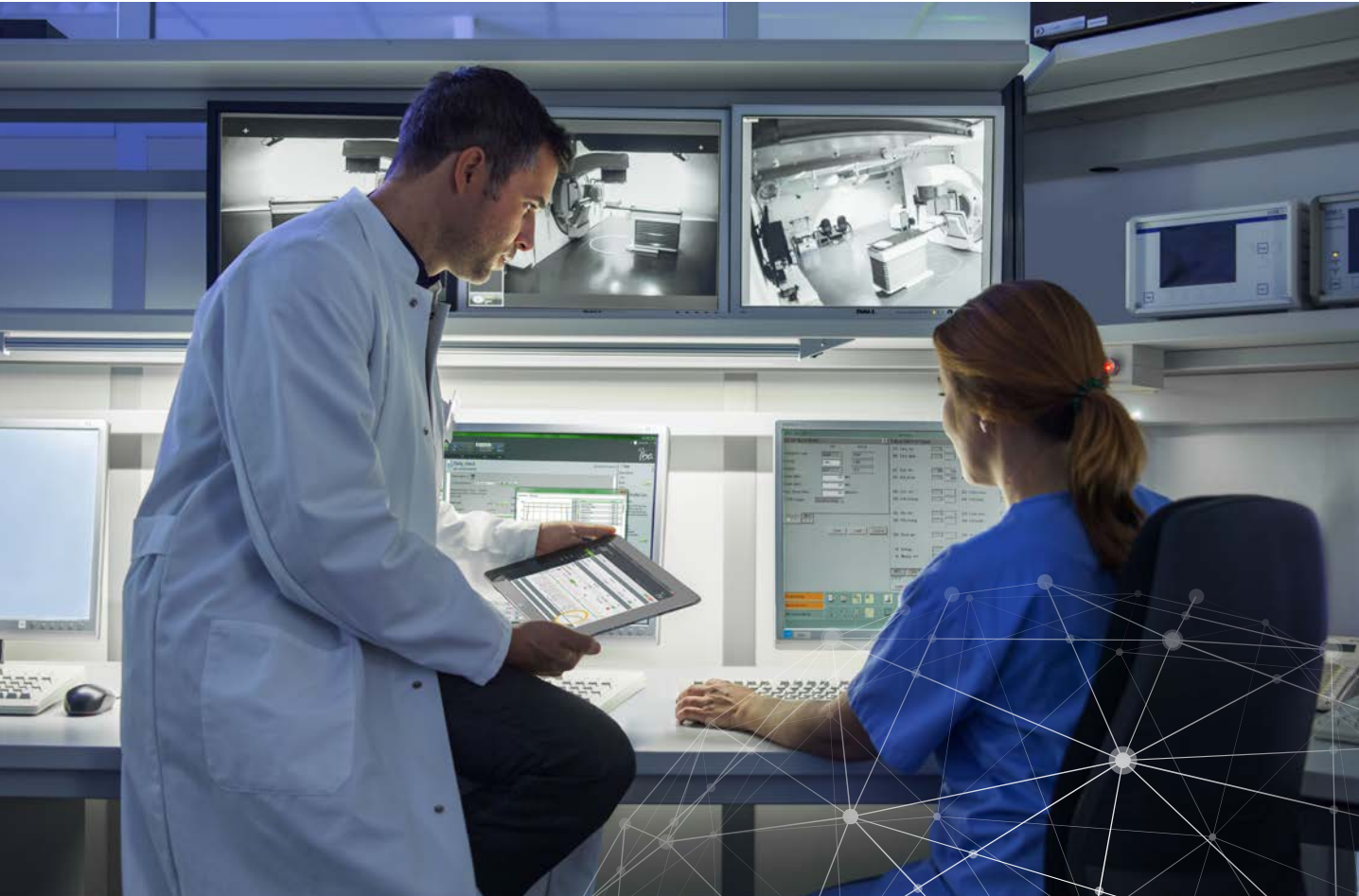
myQA is the platform to integrate quality assurance in the broadest sense.

Join Us in the Fight Against Cancer

IBA Dosimetry has worldwide recognition in its field by developing and supplying the world's top healthcare institutions with the most precise, efficient, and reliable Quality Assurance solutions that make a difference for thousands of cancer patients. If you are passionate advocate and cause-driven, you can make this quest yours too.

Global QA Platform

myQA Suite. All-in-One.

myQA is the first of its kind QA platform that integrates your QA applications, processes, workflow, people and data into one QA framework.
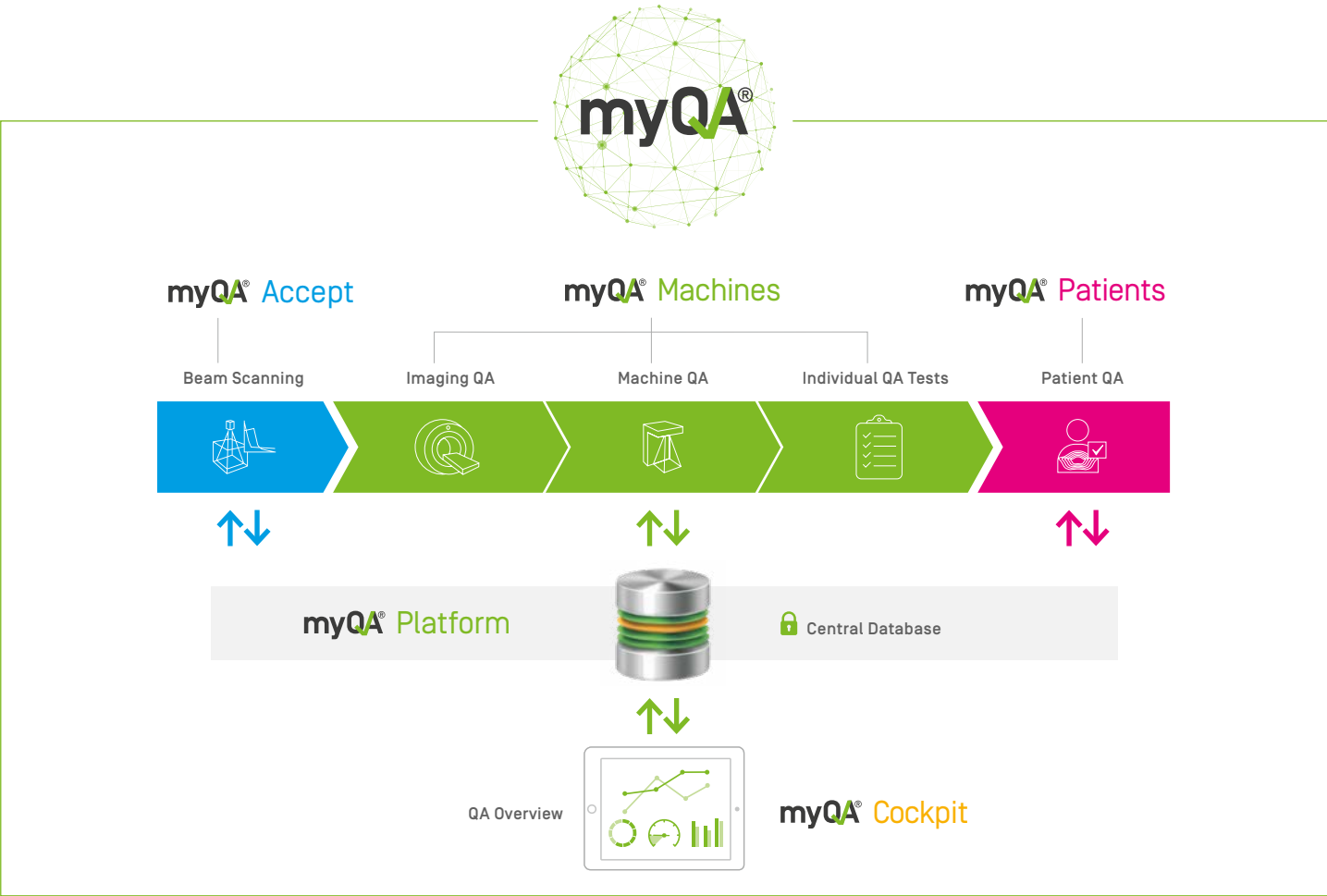
- **myQA Platform**. The central software connects all QA modules, people and sites.
- **myQA Accept**. The beam commissioning and annual QA module.
- **myQA Machines**. The complete range of machine QA modules including imaging checks. This module includes individual tests to integrate any of your hospital specific tests in myQA.
- **myQA Patients**. The patient QA and plan verification module.
- **myQA FastTrack**. For instant measurements, real-time results & analysis.
- **myQA Cockpit**. Overview of all essential QA data and status.
- **NEW:** Proton Therapy QA now connected to myQA!

All Connected.

- Integrate all your data and applications into one software platform and one Central Database (SQL).
- Accessible throughout your department and even satellites.
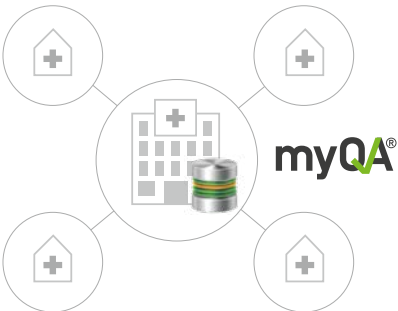- Gain QA workflow efficiency including instant status management and due dates.

All Secure.

- Patient safety: myQA enables a fully holistic QA from your patients to your TPS and Linac validation.
- Full control of your QA data from one interface.
- Data safety and compliance with administration rights, central approvals and reporting.
- Data integrity and traceability through a single central database.
- Reliable reporting of your QA for documentation and audits.

All-in-One. All Connected. All Secure.

myQA is the proven solution for Integrated Quality Assurance. Nearly 1,500 healthcare centers in the world trust myQA as their global QA Platform.

myQA is a complete Quality Assurance infrastructure consisting of advance software applications that integrate tasks and protocols; as well as phantoms and measurement hardware.
Additionally, the following service components ensure your clinical performs at peak QA performance, maximizing throughput and patient safety:

- myQA Coverage service packages for 24/7 phone & online support and frequent software and protocol updates.
- The RSS feed keeps you up to date with access to QA know-how, protocols and information.
- Trainings (online and on-site facility).
- More information can be found on the service & support page of this brochure.

myQA diagram

myQA® Accept — Beam Scanning

myQA® Machines — Imaging QA | Machine QA | Individual QA Tests

myQA® Patients — Patient QA

myQA® Platform — Central Database

QA Overview — myQA® Cockpit

Integrating and Connecting People

- myQA integrates your QA across departments & sites.
- Connect all your department-wide QA for all your applications.
- Integrate your satellite hospitals. Maintain consistency and keep your full QA overview.
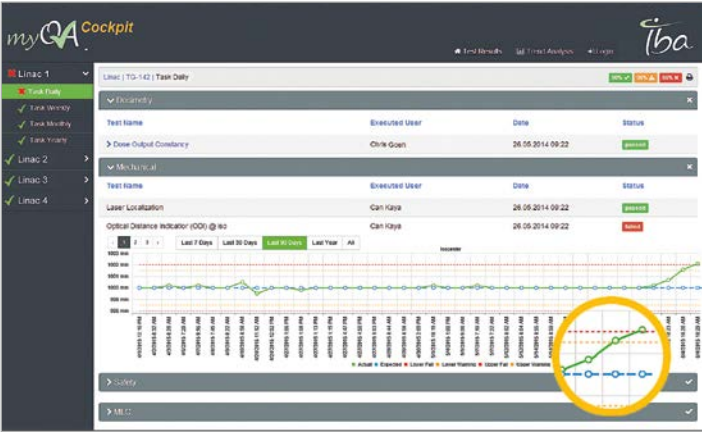- Keep a record of all your QA data on one central server database.

myQA®

Integrated QA Overview

Machine QA Overview

Never Miss Any Key Information

- Have full confidence and control over all your Linacs, imaging devices and other technology.
- In one view; verify which Machine QA tests have been completed or are still due for completion per schedule.
- Detect negative trends before major problems arise with Trend Analysis.

Your complete Machine QA status and overview for all Linacs and other machines. Including trends and individual thresholds.

All Your QA Data at Your Fingertips. Anytime. Anywhere.

The myQA Cockpit is your browser-based interface that gives you all your essential QA data and status overviews in one intuitive application. Gain full transparency of your key information - in your department or even in your satellites!

- Instant QA overview with intuitive and clear reporting, accessible anytime and anywhere.
- Tracking of all QA applications.
- Quick access to your Patient & Machine QA status and test results.
- Track test execution and completion status per schedule.
- Confirm which QA checks passed or filed according to user applied filters.

Patient QA Overview

Have Full Control and Confidence of Your Patient QA Status

- Immediately see which Patient QA tests are still due for completion per schedule.
- Use myQA Cockpit for Patient QA reviews and put notes.
- Integrate patient QA status overview from your satellite departments .

Your complete Patient QA status: 1) Overview, 2) Status Approved, 3) Status open, 4) Status declined, 5) Plan revision needed; 6) Notes

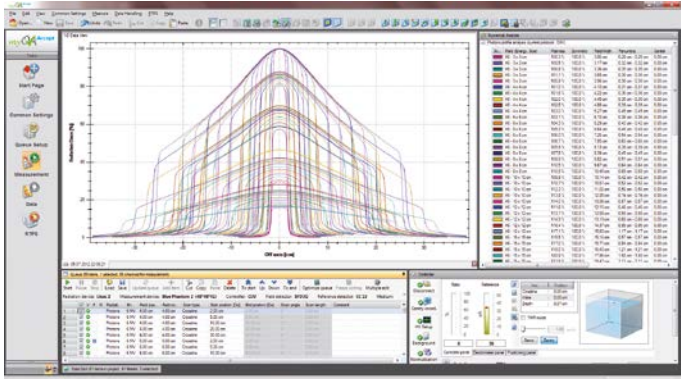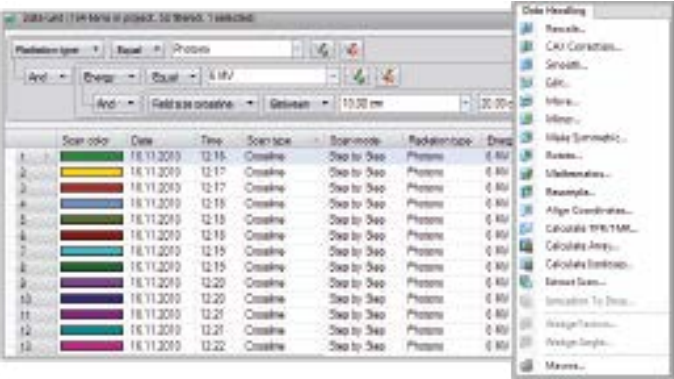# Integrated Beam Scanning & QA

SMARTSCAN™

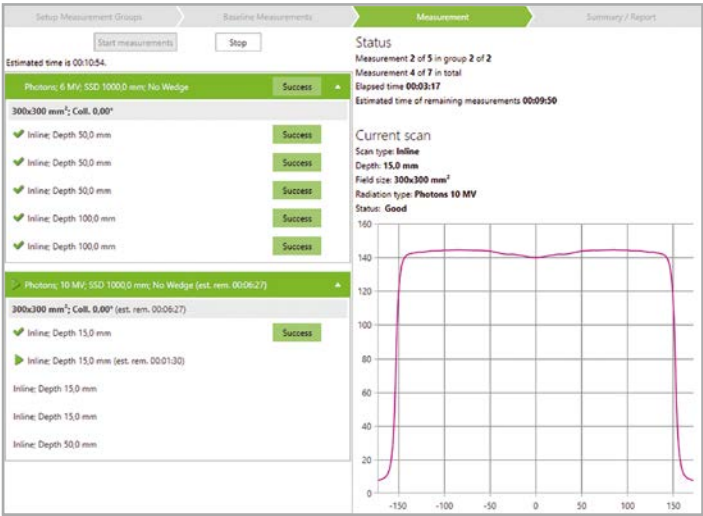### The Complete Solution for Automated and Guided Beam Commissioning

The unique complete solution package for efficient, convenient, and accurate beam commissioning like never before!

Beam Scanning. Guided.

- SMARTSCAN guides users step by step through the entire scanning workflow, from preparation to execution.
- Gain the certainty that your RTPS and LINAC work on a reliable data base - the foundation for accurate patient treatments.

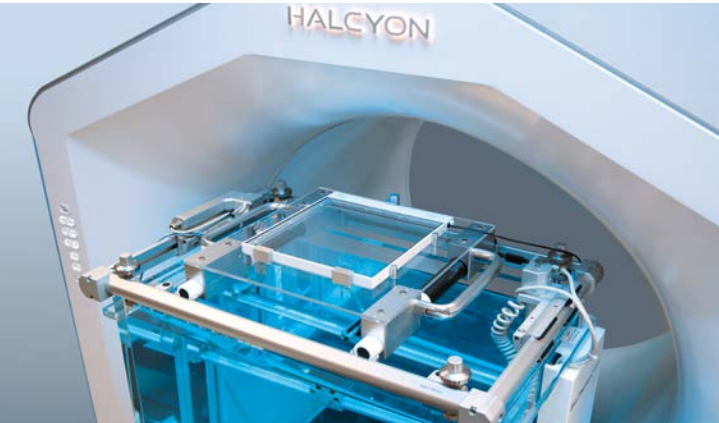### Beam Scanning. Automated.

- Save time: SMARTSCAN automates most of the repetitive tasks while executing the beam scan queue.

myQA Accept SMARTSCAN Automation and guidance interface throughout beam commissioning

Integrated Software for Beam Scanning and Analysis

- Efficiency with menu-guided workflows
- Use your commissioning scans as a reference with your other myQA applications (e.g. for Machine QA)
- Build your reference database of commissioning scans to compare with new installations and to match Linacs

myQA Accept Workflow Efficiency

1. Queue Setup	2. Data Acquisition	3. Data Handling & Analysis
- Automatic Queue Generation - Sorting, prioritizing and optimization of scan queues to maximize efficiency - Intuitive setup of user specific queues	- Fast & automatic data acquisition with predefined queues for all major TPS - Fastest scanning with optimal resolution through scanning speed adaptation	- Accurate data analysis via standard and customizable protocols - Overlaying profiles for quantitative comparison - Library of mathematical smoothing and interpolation functions

Integrated Hardware for Your Comprehensive Beam Scanning, Commissioning and Annual QA.

- All water phantoms with certified positioning accuracy +/- 0.1mm
- Long-term mechanical stability and reliability
- Unique 1 minute micro-leveling technology for accurate setup

myQA HALO™ Integrated QA for Varian Halcyon™

- The Commissioning & Beam Data Collection package for Halcyon™
- Rely on the same beam scanning technology Varian[1] uses in the factory and for developing the Halcyon™

Blue Phantom COMPACT

- Compact footprint 2D high-end water phantom with minimized weight for easy transportation and for annual checks.

Blue Phantom 2

- The world's most widely used 3D water phantom for faster highly accurate scanning
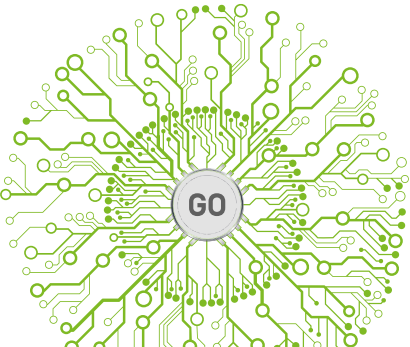- For complete LINAC commissioning & QA

Blue Phantom HELIX

- Commissioning & QA for Tomotherapy®

Integrated Machine & Imaging QA

myQA Daily - Fast and easy wireless setup and morning QA test results.

Integrated software and hardware for your comprehensive Machine and Imaging QA needs and for your individual tests execution and management.

myQA Daily
The Only Solution for Fast, Easy, and High-Quality Morning Linac QA.

- The largest number of ionization chambers of any morning QA detector provides more beam data for more accurate beam quality verification.
- The web-browser-based myQA Daily application allows flexible test execution from any network PC or tablet and easy access to test results.
- Compatible with Varian Halcyon™

StarTrack
The Univseral Machine QA Solution

- For advanced monthly & annual Machine QA
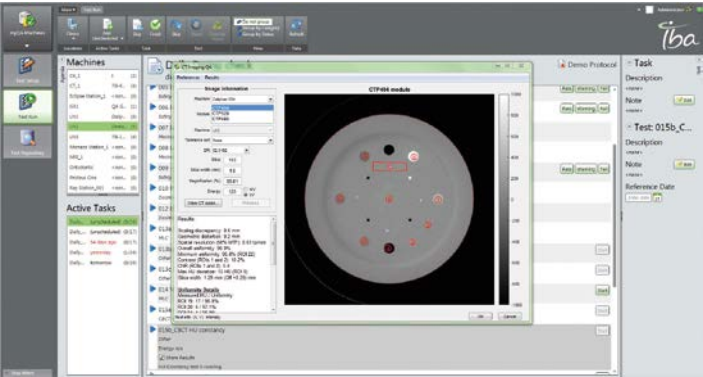- 453 air-vented ionization chambers
- Compatible with Varian Halcyon

Detectors for Machine QA dosimetry

- Connect StarTrack, MatriXX or Dolphin detectors to myQA
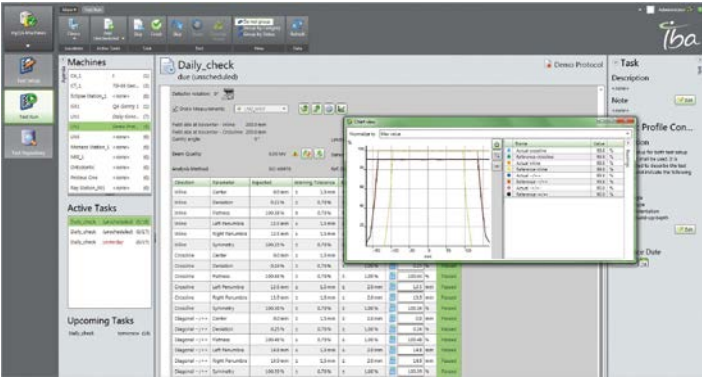- All main tests in one shot: dose, profiles, diagonals, energy verification, etc.

Multiple phantoms integrated

Integrated Software for All Imaging and Machine QA Needs

- Full test coverage: Dosimetry, imaging, MLC QA... and more.
- Protocol-based and workflow-optimized tests.
- Easy access to all QA results and trends in myQA Cockpit
- Reference your machine QA data with your commission data.
- TG-142 and many more protocols included.
- Comprehensive analysis, archiving, and reporting tools.
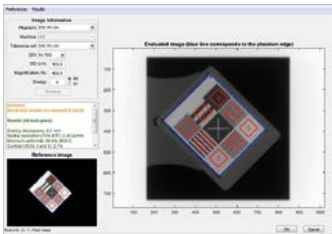- Flexible scheduling tool to manage your tasks, resources & time.
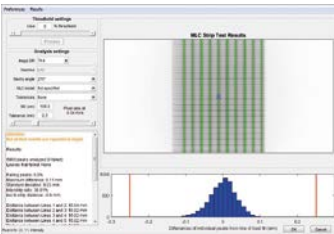

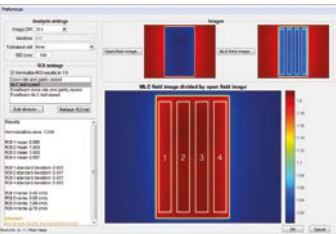
3D imaging QA (CT / CBCT)

Dosimetry plug-in

Winston Lutz Isocenter Check

2D imaging QA

MLC QA

VMAT QA

Individual QA Test: Integrate Any of Your Specific Tests

- Your individual QA checks and any other tests can easily be integrated with the myQA customizable generic tests functionality
- Easily compose any test you need to check and document
- Example: Check the temperature of your medicine fridge, check your room lighting or security locks ...

With the myQA's Individual Test feature we even integrate and track checks such as "Doors Locked" or "Oxygen Off".

James P Nunn, MS, CHP, DABR
Senior Medical Physicist,
LewisGale Regional Cancer Centre, Pulaski, USA

Integrated Patient QA

Integrated Software for Patient QA

- 2D Patient QA application for IMRT, rotational and FFF treatments Patient QA workflow efficiency, including instant status management and due dates
- Reliable reporting of your patient QA for documentation and audits

- Multichannel Film Dosimetry: highest accuracy for IMRT, VMAT, and SBRT/SRS. Eliminates films / scanner artifacts. Supports high doses

myQA Patients plan QA verification window

Automatic instant gamma results

1. Import & Manage Patients	2. Measure	3. Verify	4. Approval & Report on the Database
Import & Full DICOM Interface	**Easy Measurements**	**Verification Efficiency**	**Approval Efficiency**
■ Support of DICOM Listener, Query/Retrieve, file-based import, and DICOMDIR	■ Intuitive operation with visual confirmations	■ One click workflow with automated Gamma results	■ Electronic approvals with personalized comments
■ Variety of supported dose & fluence map formats	■ Beam trigger mode		
		Verification Power	**Fast Reporting and Archiving**
Quick Patient Overview	**Interface to MatriXX**	■ Single/composite IMRT	■ Export your report as RTF, HTML or PDF file
■ Patient list filter by case or approval status	■ Seamless high-resolution IMRT / VMAT measurements	■ Relative/absolute dose	■ Data export via ASCII / CSV
		■ Local & global gamma	
		■ Film analysis supported	

Smartly designed measurement tools and advanced integrated verification software are your basis for efficient & precise patient QA. IBA Dosimetry offers dedicated solutions to ensure your independent patient plan verification is the fastest, most accurate and most reliable.

Patient QA Hardware

- Select from a wide range of dedicated solutions to ensure your patient plan verification is performed efficiently
- MatriXX detectors are compatible with: Conventional & IMRT, VMAT / RapidArc®, FFF Beams, Varian Halcyon™, TomoTherapy®
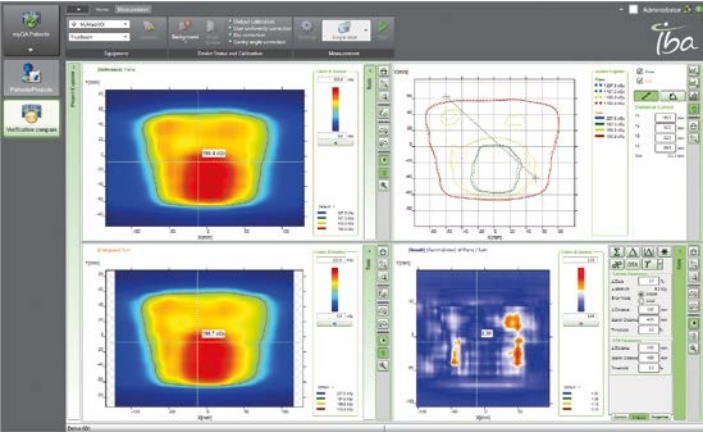

MatriXX detectors

miniPhantom

myQA® Cockpit

The patients view of the myQA Cockpit provides full control over your patient QA.

Gain a complete status overview with browser-based access – anytime, anywhere!
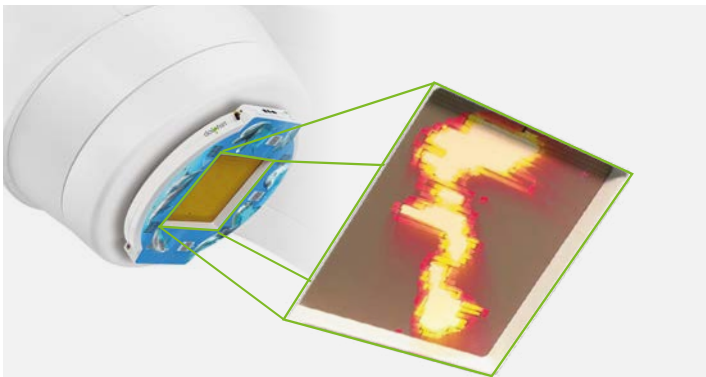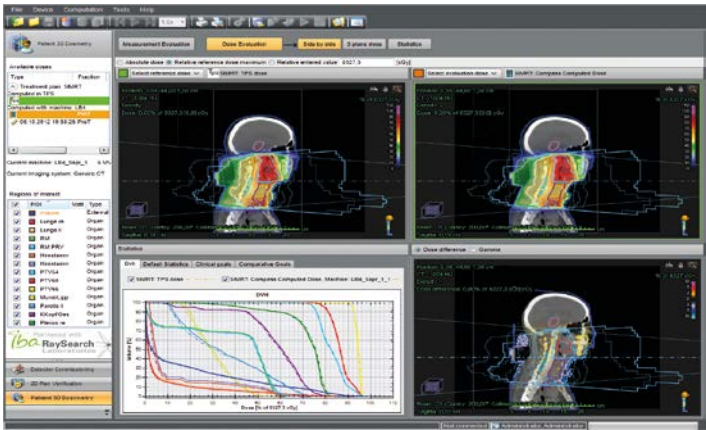
3D Patient QA

Image courtesy of Praxis für Strahlentherapie, Dortmund, Germany.

Real patient dose measurements and QA

DOLPHIN®
Most Advanced 3D Patient QA Measurements

DOLPHIN real Linac output measurements for 2D and/or 3D plan QA for pre-treatment QA.

- High accuracy: 1513 ion chambers, 5 mm spacing (central area).
- Full field size: 40×40 cm^2 measurements in one setup.
- High efficiency: 60 sec. setup & readiness for QA measurement.
- 6MV and 10MV photon beams, flattened and FFF.
- Use DOLPHIN for machine QA with myQA Machines.

COMPASS - 3D Patient Dose QA Software

Verification Certainty

- Reconstruct the real patient dose in the patient's anatomy based on DOLPHIN or MatriXX measurements.
- Understand the source of deviations and the clinical impact of the actual delivery.
- High accuracy powered by independent TPS-class dose engine.

Efficiency

- Instant automatic verification.
- TPS proven intuitive analysis tools (DVH / comparative Doselines).

Monte Carlo Dose Check & Plan QA

SciMoCa provides the full overview whether the treatment plan is within constraints or not.

SciMoCa™ Monte Carlo
Accuracy. Ensured.

Secondary Independent Dose Check & Plan QA

SciMoCa supports all Linacs: Elekta™, Siemens™, CyberKnife®, TomoTherapy®, and all Varian™ Linacs [except Halcyon™].

SciMoCa supports all treatment planning systems that provide DICOM export.

Supported treatment techniques are 3D, IMRT, VMAT, SBRT, SRS, CyberKnife® cones, Iris, and MLC.

Accuracy

- SciMoCa achieves an accuracy of < 1% * and matches the precision of Varian´s Acuros® Algorithm.
- Sophisitcated Monte Carlo implementation and custom machine-specific Linac beam model.

Calculation Speed

- Truely impressive Monte Carlo calculation speed with optimized dose engine for full 3D calculations.
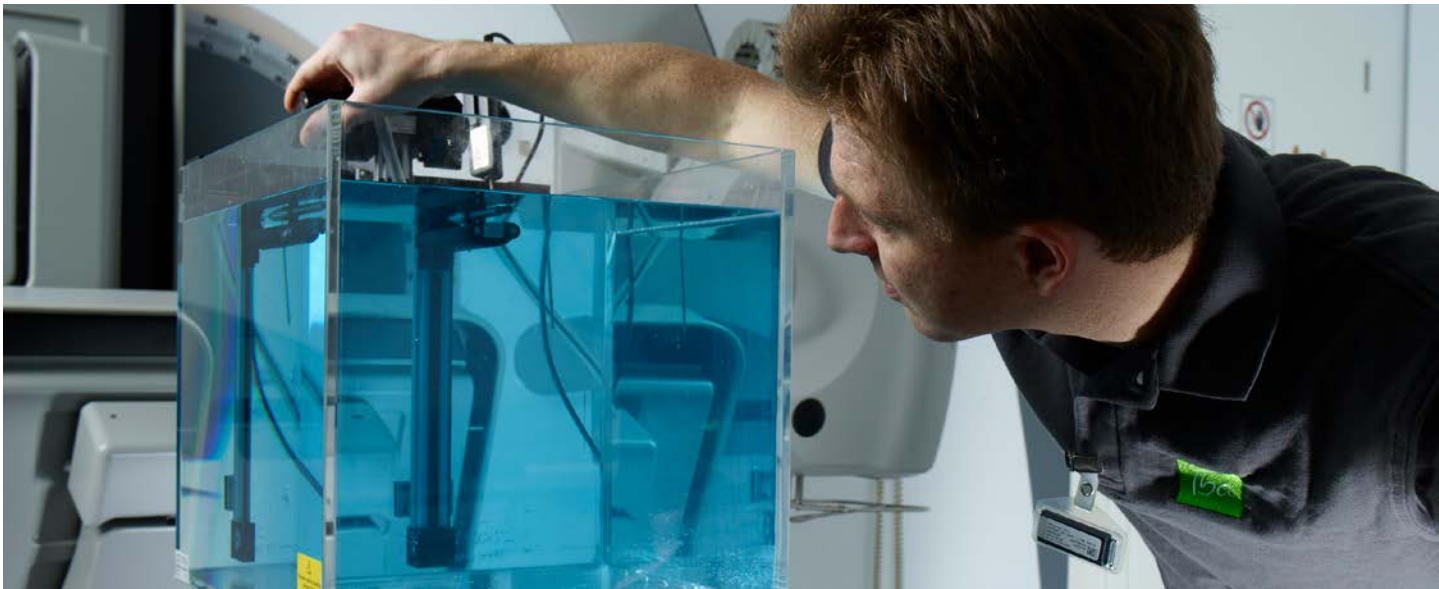- Background calculation time example: Head & Neck VMAT (2 Arcs, 293 control points) is calculated in < 1 minute.**

Automatic analysis and display of dose verification results

DVH & dose difference of TPS vs. independent Monte Carlo dose

Absolute Dosimetry Solutions

IBA Dosimetry offers a complete range of products including reference class electrometer, water phantoms and radiation detectors for dosimetry of photon and electron beams and radioactive stability check devices.

Reference Class Electrometers

Dose1

- Single Channel high-performance Reference Class Electrometer
- Significantly exceeds the recommendations of the IEC 60731.
- Dose, dose rate, average dose rate, charge, current and dose per monitor unit are measured and displayed simultaneously.

Dose2

- Dual-channel, high-performance reference class electrometers for measurements of absorbed dose

Phantoms for Absolute Dosimetry

WP1D

- 1D stand-alone water phantom
- For absolute dose measurements according to TG-51 and IAEA TRS-398 dosimetry protocols
- Available as motorized or manual version

WP34

- Calibration Water Phantom
- Absolute dose measurements with horizontal beam arrangement. For calibration of ionization chambers in RT
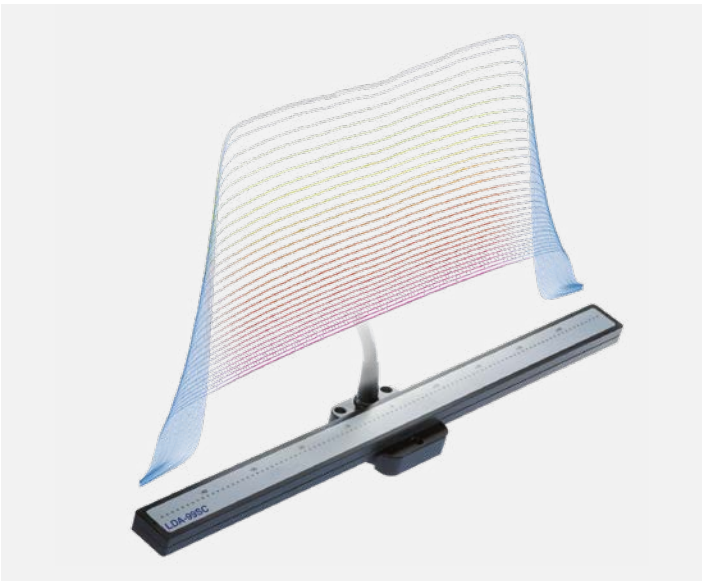
Solid phantoms for absolute dosimetry

Detectors

IBA Dosimetry offers a full range of ionization chambers and diode pSi semiconductor detectors for various 2D and 3D water phantom systems and solid phantoms.

Ion Chamber detectors are from our in-house production and have been extensively tested to meet the highest criteria in radiotherapy dosimetry.

Linear Diode Array - LDA99

- 5 times faster beam scanning, dramatically shorter commissioning times.
- Scans the complete profile at once.
- High resolution measurements down to 0.5 mm.

Small Field Dosimetry Detectors

The ideal solution for superior SRS and SBRT beam commissioning

Stealth Chamber - Unique Reference Chamber

- Patented „perturbation-free" design attached to the gantry for excellent reference signal quality.
- Eliminates frequent reference chamber repositioning and therefore dramatically reduces the need to enter the linac room.

RAZOR – Ion Chamber and Diode Detectors Family

- Beam data accuracy for extreme small SRS/SRT field scanning.
- RAZOR NanoChamber: World's smallest ionization chamber with active cavity of 0.003 ccm.
- RAZOR Chamber: Compact air ionization chamber. Cavity volume 0.01 ccm.
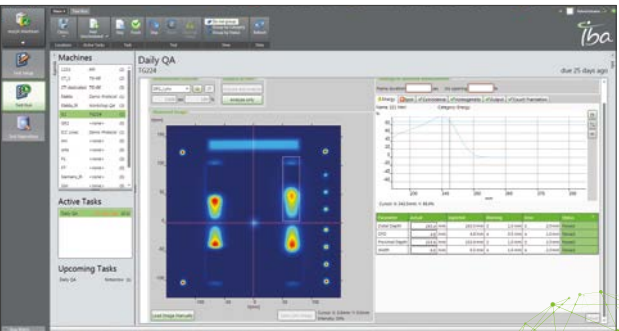- RAZOR Detector: High-performance diode detector.

Proton Therapy QA

Targeted Solutions for the Most Efficient Proton Therapy QA

Select from a full range of dosimetry equipment tailored to the needs of your proton therapy center:

- Dedicated high-end solutions designed for PT treatment safety and QA efficiency
- Unique innovations to minimize commissioning and QA times and maximize patient throughput
- QA solutions designed for and used with all major Proton Therapy machines and vendors
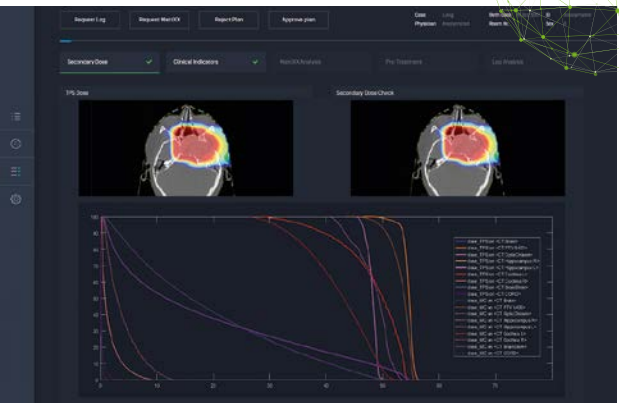

myQA interface for straightforward and efficient Machine QA verification using Lynx measurements.

Integrated Machine QA for Proton Therapy

Analyze your machine parameters comprehensively in myQA:

- Visual pass-fail analysis
- Trend analysis to detect deviations early and to ensure maximum machine uptime
- Save all your QA data in a central database

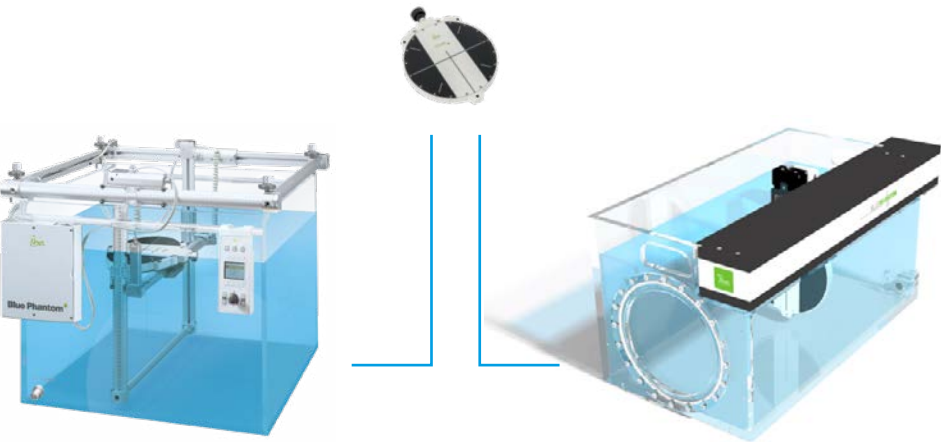### Integrated Patient QA for Proton Therapy

myQA iON****: The unique web-based patient QA Environment**

- 5 times faster patient QA with PT log file QA
- Independent Monte Carlo QA accuracy
- Automation, background processing, and task based workflow management

---

Commissioning	Machine QA	Patient QA

Blue Phantom² – 3D water phantom

Stingray – large integral chamber for PBS

Blue Phantom PT* – water phantom with Stingray chamber

Zebra – single-shot bragg peaks & SOBP measurement

Giraffe – single-shot bragg peak measurement

Sphinx – your daily QA in one shot

Lynx PT – daily machine parameter verification

DigiPhant PT – fast 2D/3D dose measurement in water

MatriXX PT/ONE – your ultimate high-dose-rate detector arrays

Machine Log File – 3D analysis with myQA iON

*Not for sale in the US; to be released in Q1/2019

**myQA iON is currently not available for sale in the USA.

QA for Imaging in Diagnostics & RT

Safer Imaging, Earlier Cancer Detection, Better TPS Contouring

- Innovative Quality Assurance (QA) devices for x-ray dose and image quality checks, as well as QA of diagnostic displays
- Patient dose monitoring solutions for x-ray imaging systems
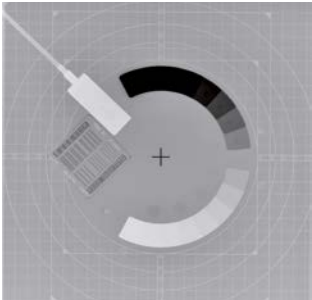

Beam QA

Image QA

Display QA

Patient Dose Monitoring
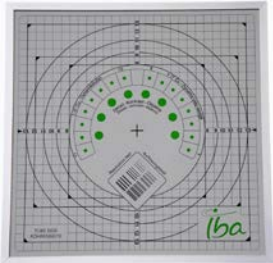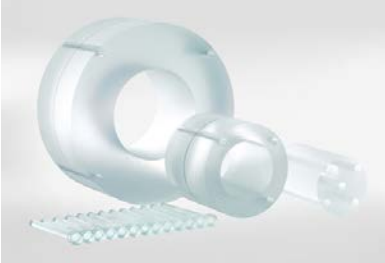
Multimeter MagicMaX Universal

High-end multimeter solution for Beam QA in all X-ray modalities and for CT / CBCT

- Supports all x-ray modalities through exchange of detectors and ionization chamber.
- Complete solution kits available.

Imaging phantoms and test plates

- Test plates for 2D image quality checks.
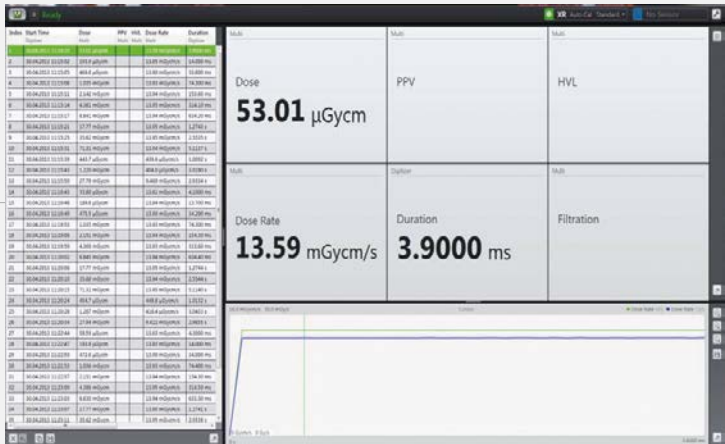- CT / CBCT Phantoms.

Advanced Image and Beam QA Solutions for CT-sim Systems in Radiation Therapy

IBA Dosimetry is your full QA solution partner, allowing you to provide quality control in medical imaging:

- Better image quality for improved diagnosis and therapy.
- Advanced imaging dose control for patient safety.

QA Application for RT Imaging Devices

- Beam dosimetry and kV imaging QA for applications in RT (e.g. for CBCT, OBI, and CT-Sim. 2D / 3D imaging).
- Linac Imaging: In a single exposure, evaluate your kV beam, flat-panel imager, and imaging dose.
- CyberKnife: Unique efficiency through support of serial exposures.

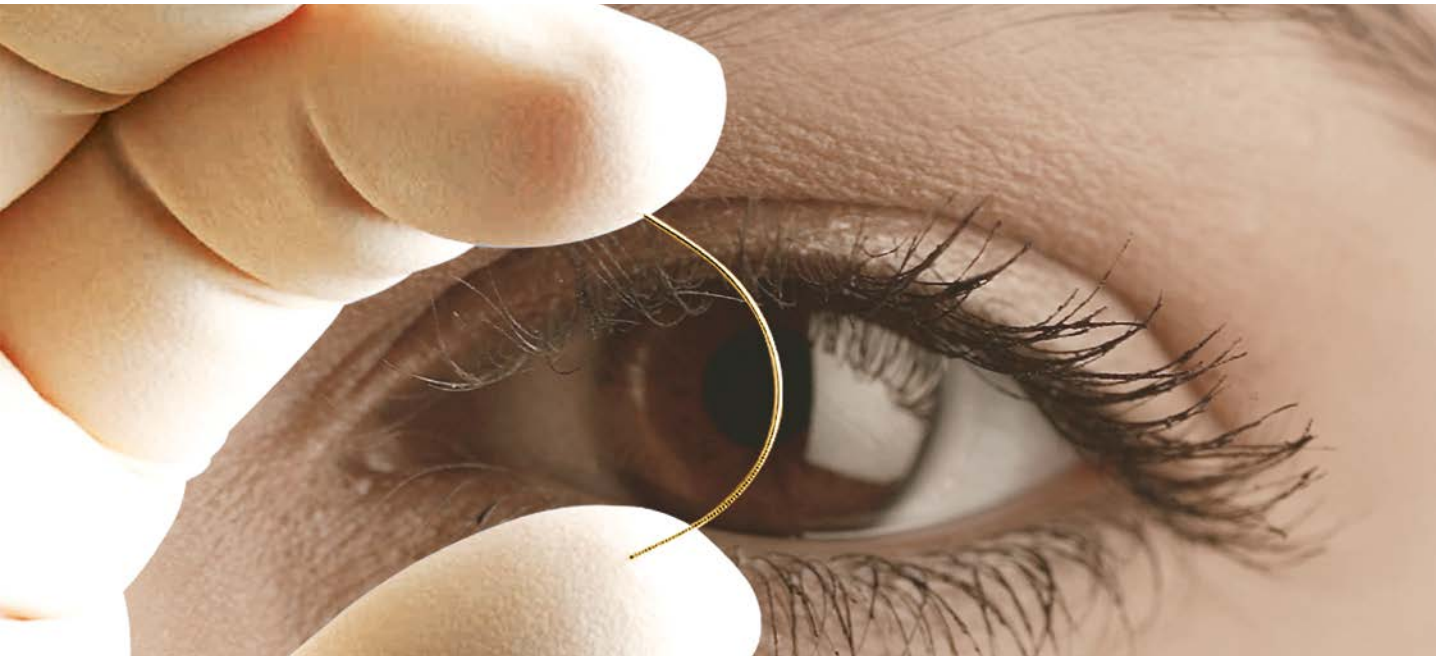1) Setup test plate & MagicMaX XR multidetector for QA of kV imager

1 exposure

2) Comprehensive instant analysis of imaging dose

3) Reporting in myQA

Imaging Markers

> *Gold and Platinum have nearly identical high radiodensities, and are easily seen and tracked by X-ray based imaging. Gold is difficult to see on MRI, whereas Platinum has greater magnetic susceptibility, producing just the right signal void to be readily visible on MRI. Platinum is the ideal fiducial material.*
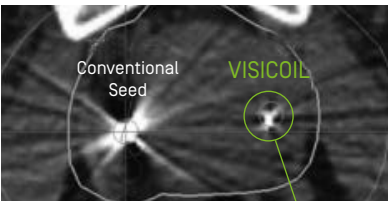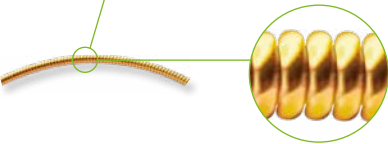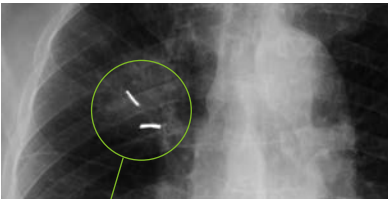
Dr. Leonard Avruch, Department of Medical Imaging / University of Ottawa (Retired)

VISICOIL™ MR

Platinum: The New Gold Standard

Multi-modality linear fiducial marker for enhanced MR/CT fusion and efficient IGRT.

VISICOIL MR – Clearly visible in MRI

See it!
VISICOIL is visually identifiable throughout the RT workflow
- Enhanced MR visibility for easier MR/CT fusion
- Visible under multiple imaging modalities
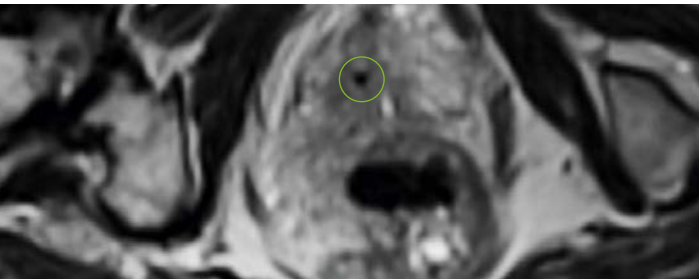- Multiple reference points per marker allows for fewer needles

Trust it!
VISICOIL is stable in tissue by design
- Stable marker localization from implant through treatment
- Helical shape and flexible design fixates marker in target tissue
- Smaller implantation path improves stability in tissue

Treat it!
VISICOIL is easy to use
- Smaller needles enable safer implants for improved patient comfort
- Minimally invasive design allows for atraumatic placement
- Efficient and reliable daily treatment setup and IGRT

Benefits of Platinum

ENHANCED MR VISIBILITY
- Better MRI Magnetic Susceptibility
- Has up to 2.5x stronger signal void over gold

> *An alternative is to consider magnetic susceptibility when selecting fiducials. This may mean replacing gold with platinum or using a hybrid gold/polymer fiducial.*

MR-Integrated workflows in Radiation Therapy
© Siemens Healthcare GmbH, 2018**

VISICOIL™ Linear fiducial gold marker

The flexible soft-tissue implantable marker
- Faster and more precise IGRT patient setup
- Supports radiation therapy accuracy and safety
- VISICOIL proven and patented design

The VISICOIL Portfolio
- Multiple lengths and sizes available to suit your needs
- Preloaded in needles or loose
- Specially sized to provide easier access for Interventional Radiology

Conventional Seed   VISICOIL
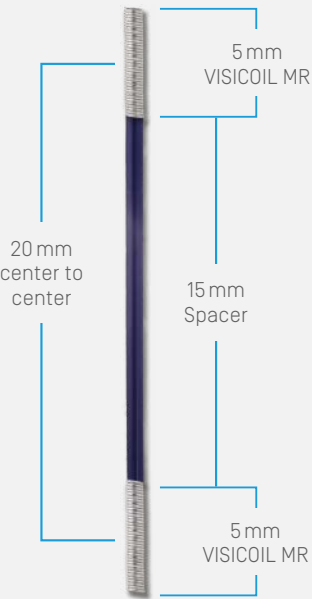
Minimal CT artifacts

VISICOIL TwinLine MR**

Optimized marker for CyberKnife® *
- Less needles: 2 VISICOIL TwinLine MR Needles vs. 4 conventional Needles
- Efficient, consistent, and reliable daily treatment set up for CyberKnife®

> *The Visicoil MR Platinum tracks well with Cyberknife® and the clearer MRI signal void allows for greater confidence with MR/CT fusion for registration. Additionally, the ability to get two of these markers inside one small (19g - 21g) gauge needle is a desirable benefit for our physicians and patients.*

Jun Yang, PhD., DABR Chief Medical Physicist Philadelphia Cyberknife®

5 mm VISICOIL MR

20 mm center to center

15 mm Spacer

5 mm VISICOIL MR

*CyberKnife® is a registered trademark of Accuray Inc. The use of the CyberKnife® trademark by IBA is not an endorsement by Accuray Inc. of VISICOIL or its promotion.
**Visicoil TwinLine is released and available in the United States of America
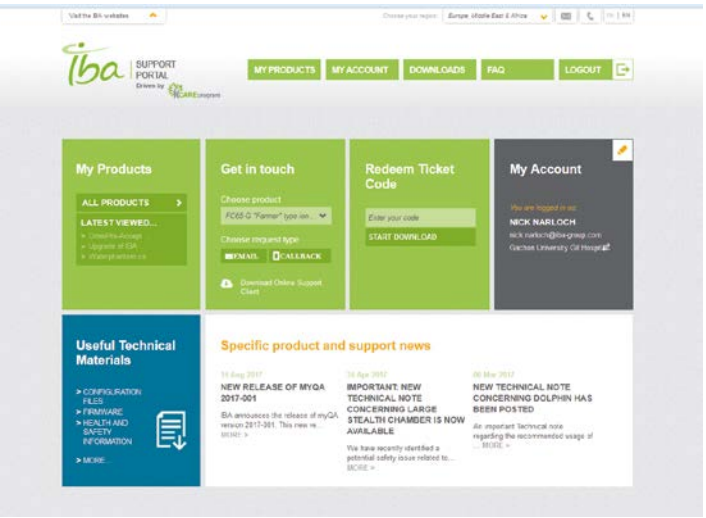
Professional Services and Support

24/7 Support When YOU Need it!

Customer Support Portal: Instant access to our 24/7 gobal support, whenever and wherever you are!

- Software downloads and updates
- User manuals, technical notes
- White papers, training videos and more

Manage the list of your IBA equipment, view service reports and information related to warranty and contract expiration.

Free for contract customers. Contact your IBA service organization for more information and availability.

IBA Dosimetry Online Support Portal: https://iba-portal.com/login

24/7 global telephone support by trained & certified engineers

---

For IBA, service is about how we care for our customers, it is our aim to serve our users in delivering service quality, service accessibility, and service assurance! Discover how IBA supports you to ensure your equipment uptime and to protect your investment.

With over 45 years of experience keeping clinics running efficiently and safely, you can be assured that the IBA service team is there to support you when you need help.

3 qualified service teams plus additional services partners around the globe ensure you have instant access to help!

myQA®
INTEGRATED QUALITY ASSURANCE

Trainings

Gain leading QA knowledge and ensure best practice!

- IBA Academy and the International Competence Center (ICC)
- Expert led workshops with hands-on practices
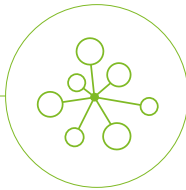- Training webinars and videos

Services & Support

Quality Support

- Unique online Customer Support Portal
- Expert telephone support
- Trained & certified technical engineers

Quality Services

- Customizable and affordable service packages
- Onsite installations & commissioning services
- Calibration services (IBA Secondary Standard Dosimetry Lab)
- Factory-based precision preventative maintenance & certification

Events

Benefit from unique IBA user events to network and to have fun!

- Purposeful users meetings
- Annual events around the world
- Networking and exchange of know-how

myQA Coverage

Keep your equipment and clinic always at peak performance!

- 24/7 expert hotline
- Regular software updates

IBA Dosimetry improves patient treatment safety through innovative Integrated Quality Assurance solutions

At IBA Dosimetry, we innovate radiation therapy and diagnostics through Integrated Quality Assurance solutions that are efficient, intuitive, and provide peace of mind to our customers and patients!

IBA Dosimetry operates a Secondary Standard Dosimetry Laboratory accredited SSDL/DAkkS/ADCL:

The basis for highest quality IBA products and services

High-end calibration services of dosimeters & detectors, electrometers, and metrological control for Linac and ^{60}Co irradiations

SSDL.

IBA Dosimetry GmbH headquarters in Schwarzenbruck near Nuremberg, Germany

FOLLOW US

- ▶ YouTube | youtube.com/user/ibadosimetry
- in LinkedIn | linkedin.com/company/iba-dosimetry-gmbh
- 🐦 Twitter | twitter.com/ibadosimetry

IBA Dosimetry
Integrated Quality Assurance
Europe, Middle East, Africa | +49-9128-6070
North America and Latin America | +1-901-386-2242
Asia Pacific | +86-10-8080-9288
dosimetry-info@iba-group.com | iba-dosimetry.com

iba