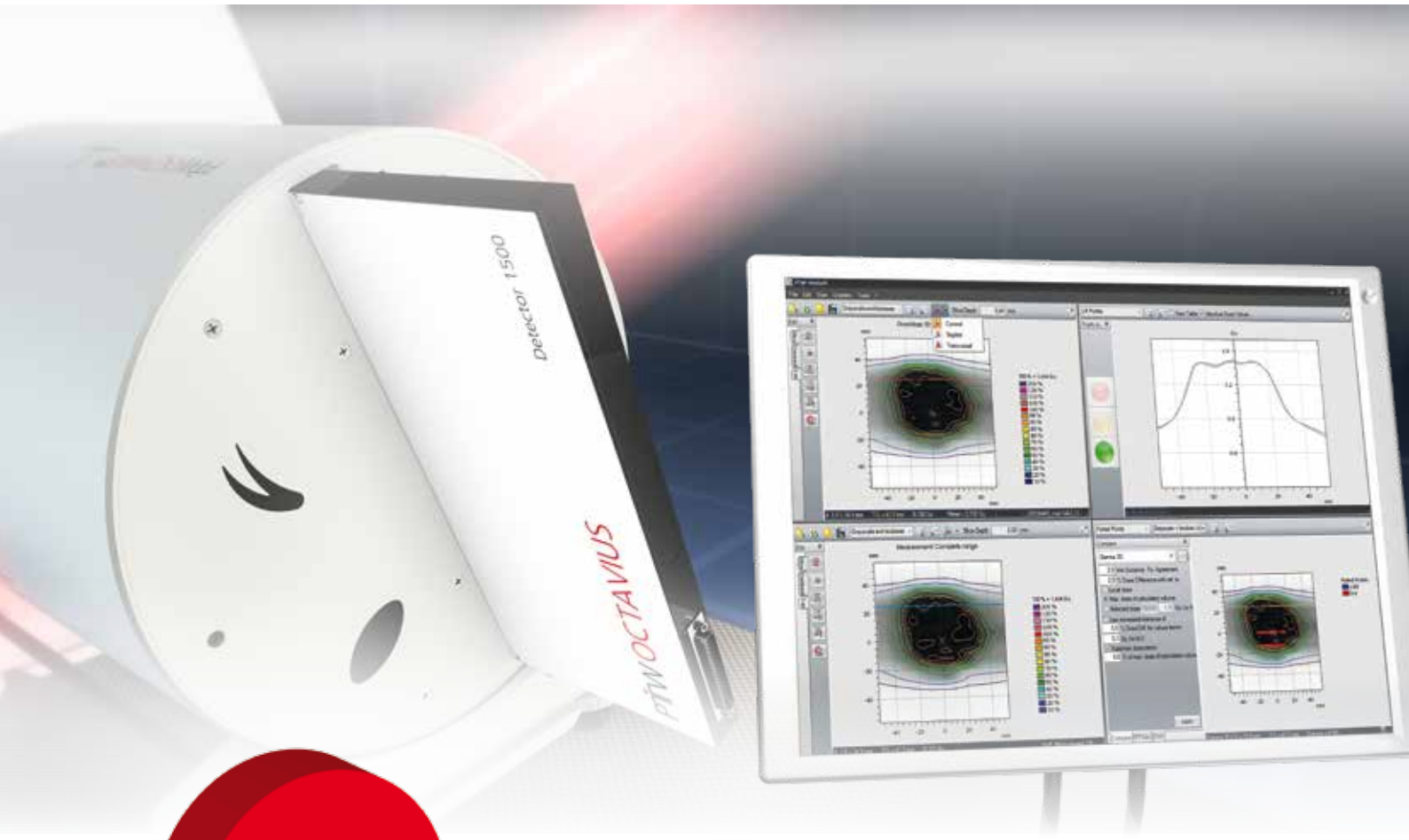
Smarter. Faster. Easier.



Supports Halcyon™

OCTAVIUS 4D

Modular Solutions for 4D Patient and Machine QA

IMRT · VMAT · SRS/SBRT

PTW

Whatever your needs in patient and machine QA, OCTAVIUS® 4D is flexible enough to follow suit. Anytime.

Its innovative modular design, coupled with the best detector technology on the market, makes OCTAVIUS 4D an ideal system for routine patient and machine QA of all major radiotherapy techniques – from conventional step-and-shoot to multiple-arc, non-coplanar treatment plans. Perfectly adapted to your application and budget, yet flexible enough to meet your testing needs tomorrow. Select the phantom and detector combination that is best for you and get started. Expand and upgrade it anytime later as your needs change or grow.

With modular OCTAVIUS 4D, you gain the flexibility to stay ahead in patient safety and clinical efficiency. Today and tomorrow.

Because every facility has its own needs.

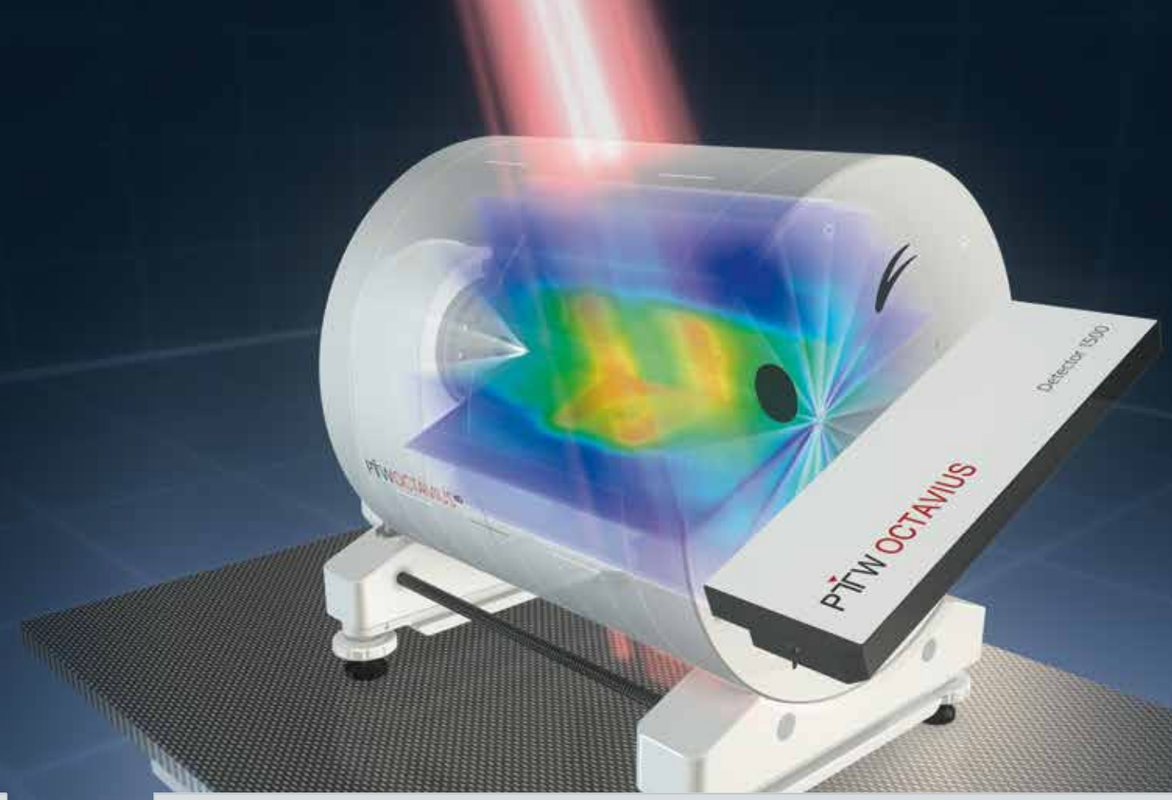
One System. For Multiple Applications.

IMRT **VMAT** **SRS/SBRT**

OCTAVIUS 4D

Faster. Easier. Smarter.

Why you should use it



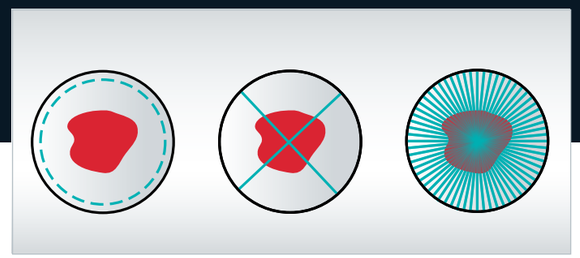


Fig. 1: Measurements inside the entire phantom volume
Simplified illustration showing measurement positions (blue) obtained with OCTAVIUS 4D (right) compared to other dosimetry systems which measure either outside the target volume in the low dose area (left) or far fewer measurement planes (center).

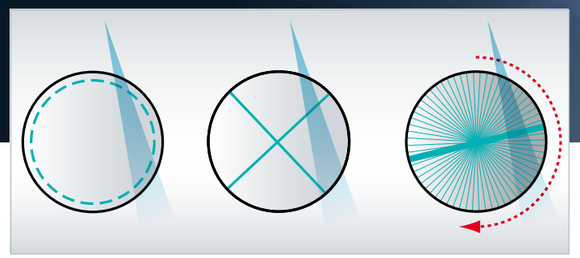


Fig. 2: Detector always perpendicular to beam axis
Unlike other dosimetry systems where inclined beam vectors result in a varying angular response of the diodes (left, center), the OCTAVIUS detector (right) provides truly isotropic, angle-independent dose measurements.

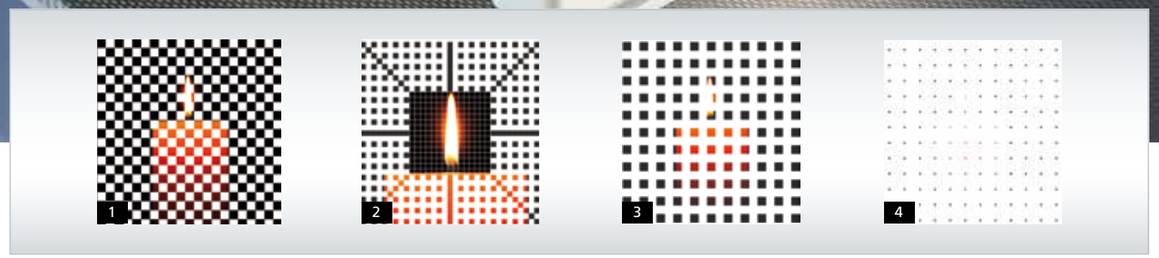


Fig. 3: Largest field coverage – better detection of hot spots
Simplified illustration showing maximum field coverage achieved by OCTAVIUS ionization chamber arrays with a single measurement compared to diode array of the same detector spacing, even though the actual information is one dose value per single detector for all array types
(1: OCTAVIUS 1500: 50% coverage;
2: OCTAVIUS 1000 SRS: 85% coverage in center area;
3: OCTAVIUS 729: 25% coverage; 4: Diode array: 0.64% coverage).

- **Flexibility unlike any other**
  Choose from three powerful, ready-to-use QA solutions that perfectly suit your today's needs and budget. With its modular phantom design and variety of detectors, OCTAVIUS 4D gives you the flexibility to combine, expand or upgrade detectors and phantom tops as and when needed.

- **True 3D dose verification**
  Rotating the detector synchronously with the gantry, OCTAVIUS 4D measures the dose in the entire phantom volume, including the clinically relevant target volume around the isocenter (Fig. 1). Unlike other 4D QA devices, it does not rely on TPS data or need additional hardware or software for 3D dose reconstruction.

- **True isotropic geometry**
  The unique rotating phantom always aligns the detector perpendicular to the beam. As a result, OCTAVIUS 4D requires no angular corrections or calibrations for dosimetric accuracy (Fig. 2). Because it measures the dose for each gantry angle, potential gantry angle errors can be identified more easily.

- **Independent error detection**
  OCTAVIUS 4D is the only 4D QA device that calculates the 3D dose and patient DVHs based on truly measured data – at virtually any position inside the phantom and entirely independent of the treatment planning system (TPS). As a result, it is capable of detecting errors in the TPS that might otherwise pass unnoticed.

- **Outstanding detectors for better results**
  OCTAVIUS detectors use Gold Standard ionization chambers known for their outstanding stability and signal-to-noise ratio. With the largest field coverage of available commercial arrays (Fig. 3) and a detector density and resolution perfectly adapted to their application, OCTAVIUS detectors provide a very accurate and reliable measurement of the dose delivered.

- **Clinically relevant dose analysis of any treatment plan**
  Advanced tools, including 3D volume analysis, patient CT overlay or independent patient-based DVH analysis, assist you in making better assessments of dose delivery to critical structures and organs at risk.

- **One system for multiple techniques**
  From RapidArc® to VMAT, from SRS to IGRT with Halcyon™, OCTAVIUS 4D supports the latest treatment techniques and modalities, so you can still use it when you increase your treatment options.

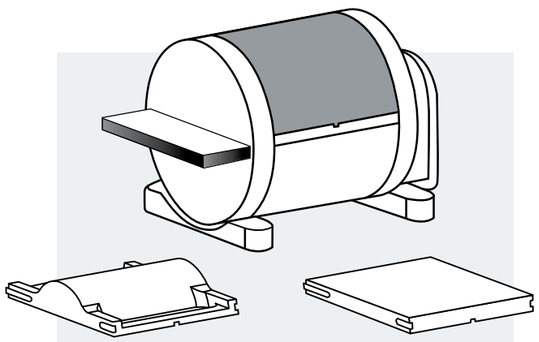
- **Integrated QA**
  Add the optional LINAC QA package to perform routine quality assurance checks on your LINAC at all gantry angles using OCTAVIUS 4D – no gantry mounts or corrections needed. Simply exchange the phantom top and start measurement. Export your results to the optional Track-it QA database to monitor changes of LINAC performance parameters or class-specific gamma passing rates.

OCTAVIUS 4D 1500

The all-in-one solution
that satisfies multiple
application needs

IMRT • VMAT • SRS/SBRT

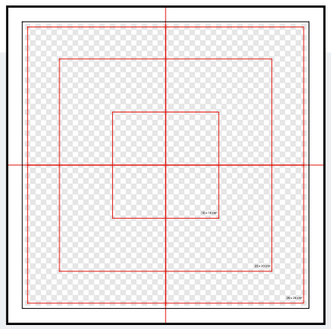
One phantom – multiple options



OCTAVIUS 4D 1500 comes with a unique rotating phantom that accommodates any OCTAVIUS detector.

Entirely modular in design, it comprises a base unit and three exchangeable, application-specific phantom tops. With a diameter of 32 cm and a length of 34 cm, the standard phantom configuration perfectly meets the demands of multiple verification techniques. Special phantom tops for LINAC and SRS QA are optionally available and can be added as needed.

Highest detector density – best field coverage



Detect clinically relevant dose errors and deviations much faster and easier than ever before.

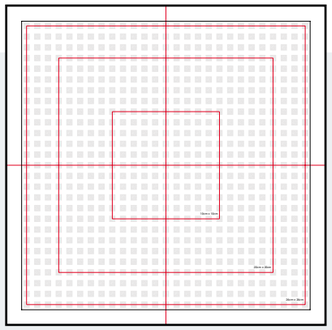
With 1405 ionization chambers, arranged in a unique checkerboard pattern on 27 cm x 27 cm, OCTAVIUS Detector 1500 virtually leaves no MLC line without detectors, improving passing rates across all treatment plans. Its excellent spatial resolution, which can be doubled simply by merging two measurements, makes OCTAVIUS 4D 1500 also highly suitable for SRS/SBRT verification.

The right tools for dose evaluation – for any treatment plan

Select from advanced comparison and analysis tools to gain a realistic estimate of the dose delivered.

Effectively verify a wide range of treatment plans, including non-coplanar treatments using couch rotation or head and neck treatments with long radiation fields (up to 27 cm x 54 cm). Results can be superimposed on your patient's CT scan for faster error detection or displayed in easy-to-read DVH plots.

OCTAVIUS® 4D 729: True 4D for smaller needs



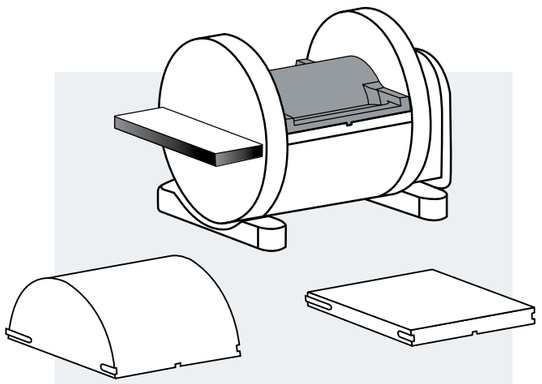
Using the same phantom, but adding the attractively priced, first-generation array OCTAVIUS Detector 729, OCTAVIUS 4D 729 provides an affordable starter solution for those looking to move to 4D patient and machine QA.

With 729 ionization chambers uniformly spaced on 27 cm x 27 cm, OCTAVIUS Detector 729 offers a good resolution and excellent field coverage, making it an ideal QA tool for static and dynamic IMRT delivery techniques.

OCTAVIUS 4D 1000 SRS

The all-in-one specialist for **4D SRS/SBRT QA**

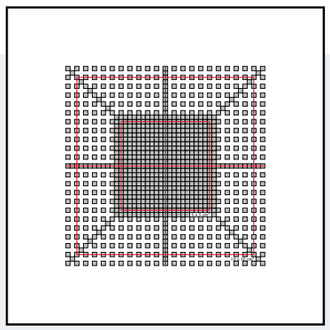
Dedicated solution



Combining the modular phantom with a specially designed SRS phantom top and a high-resolution detector array, OCTAVIUS 4D 1000 SRS offers you a dedicated, all-in-one solution for stereotactic QA.

With a diameter of 17 cm, the SRS phantom top approximates the size of a human head and has been optimized to improve the accuracy of 3D dose verification of very small volumes or field sizes, e.g., in the brain region. Quickly exchange it with the optional LINAC QA top and you are ready to perform routine machine QA at any gantry angle with your OCTAVIUS system.

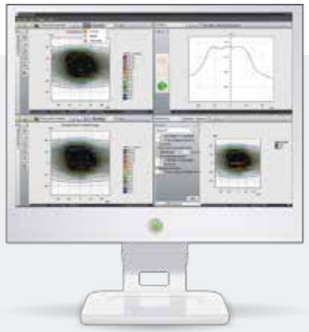
Best available resolution – highest sensitivity



Detect errors and deviations in MLC alignment with sub-millimeter accuracy.

With 977 liquid-filled ionization chambers on 10 cm x 10 cm, each as small as 0.003 cm³, and a spatial resolution of only 2.5 mm, OCTAVIUS Detector 1000 *SRS* shows a sensitivity and field coverage as only known from film, resulting in excellent passing rates across all stereotactic treatment plans.

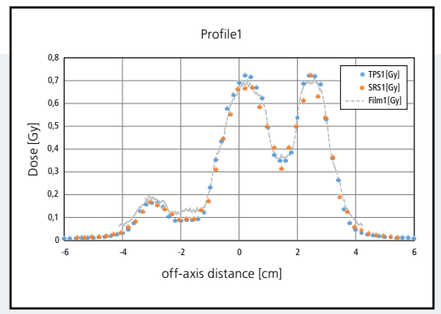
The right tools for dose evaluation



Choose from a wide range of advanced comparison and evaluation tools for a clinically relevant dose analysis.

Comfortably verify even the most complex SRS/SBRT treatment plans, including treatments with non-coplanar beams, FFF beams or with longer radiation fields (up to 10 cm x 22 cm) where greatest accuracy is required. Results can be superimposed on your patient's CT scan for faster and better error detection or displayed in easy-to-read DVH plots.

OCTAVIUS® Detector 1000 *SRS*: Better than film



Comparison of line dose profiles of an IMRT field from the TPS and profiles measured with the OCTAVIUS 1000 *SRS* detector array and Gafchromic™ EBT3 film.

Poppe et al.: Properties of a liquid-filled ionization chamber array, Medical Physics, Vol. ***40****, No. 8, August 2013*

OCTAVIUS 4D

VeriSoft® Patient Plan Verification

Does it agree or not?

3D Volume Analysis

Gain more confidence in the accuracy of your results by performing a volumetric 3D gamma index analysis that expands the analysis range from a plane to a volume. By calculating the gamma value for each voxel in the entire phantom volume and providing the results within less than a minute, the unique 3D volume analysis tool takes the commonly used gamma evaluation one step further. It not only improves passing rates, particularly in regions of steep dose gradients, but also significantly increases evaluation efficiency.

CT Overlay

Failed points, measured isodoses, contours of the CTV, PTV and organs at risk can be overlaid onto the patient's CT image, making it easier for you to immediately detect dose errors and identify the possible causes for failures.

DVH 4D

Optimize your treatment plan based on additional, independently acquired dose data. Unlike other QA devices, DVH 4D calculates patient dose-volume histograms truly independently from the TPS, entirely based on OCTAVIUS 4D measurement data and the patient's anatomy, using density values from the patient's CT scan.

Gamma Index Analysis

OCTAVIUS 4D allows to calculate a 3D gamma index for each of the three planes (axial, sagittal, coronal) which may reduce the number of failed points in high dose gradients. If local dose is chosen as gamma evaluation criterion, overdosage in low dose regions can be detected which may be overseen when using the maximum dose level as reference value.

Off-Axis Measurements

Verify treatment deliveries characterized by off-axis target geometries, such as used in stereotactic ablative radiotherapy (SABR). Simply shift your phantom in any spatial direction to ensure full target coverage by the detector, and then perform your measurement as usual. The new dose reconstruction algorithm in VeriSoft accounts for the geometric changes.

Non-Coplanar Measurements

Comfortably verify treatment plans with non-coplanar beams using the same measurement setup as for coplanar measurements. Simply check "Non-coplanar 4D dosimetry" before measurement, select or enter the treatment couch angle and perform your measurement as usual. VeriSoft will take the couch angle into account during dose reconstruction.

Compose

Measure very long radiation fields, such as typically encountered in craniospinal treatments, by combining two measurements. Shift your phantom in gun-target direction, rotate it by 180°, and then repeat your measurement. VeriSoft combines both measurements and compares them with the TPS dose distribution.

Merge

Double your detector's area coverage to increase spatial resolution and optimize your system's error detection capability by merging two measurements in VeriSoft. Shift your phantom longitudinally by 2.5 mm or 5 mm (depending on detector used) simply by moving the couch and take a second measurement – no need to enter the treatment room.

Project

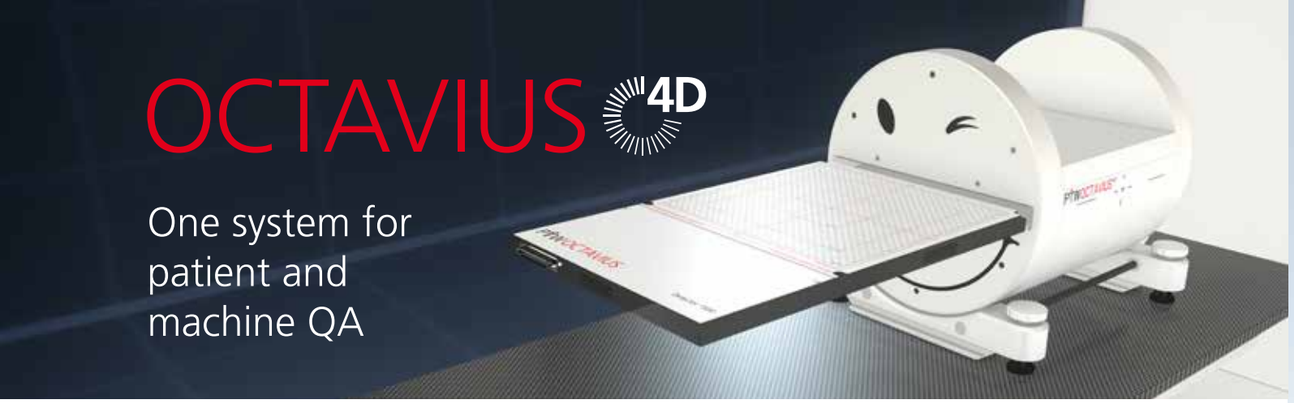
Optimize your workflow. Save your evaluation as "Project" and reload it when needed with one single click. The project file contains all settings and data required to resume or review your saved evaluation in VeriSoft at a later stage.

Track and monitor

Track the quality of your treatment plans to take action when needed. Define and assign classes in VeriSoft, e.g., depending on the treatment type (prostate, H&N, etc.), and export the verification results, along with the project file and graphics, to Track-it for efficient case-related monitoring of your QA data in one place. Simply click on the project file to review your evaluation in VeriSoft.

Multiple tools for a clinically relevant dose analysis

- **Isodose, dose distribution and dose profile overlays**
- **Dose-difference distributions**
- **Dose distribution comparison in all three planes (axial, sagittal, coronal)**
- **Composite or control point analysis**
- **Results summary with "traffic light" indicator**
- **Gamma histograms**
- **3D gamma evaluations (e.g., global, local, selected dose)**
- **3D volume analysis**
- **Patient CT overlay**
- **Patient-based DVH analysis**



MultiCheck® Machine QA
Does it perform as required?

Complete LINAC QA in a few minutes

Use the optional LINAC QA package to check beam constancy and MLC positioning accuracy conveniently with OCTAVIUS 4D. With a build-up of 5 cm, the LINAC QA phantom top is perfectly adapted for machine QA requirements of multiple techniques. Quickly acquire all relevant beam parameters with one measurement. Track and trend the results of selected parameters, print them for sign-off or export them to spreadsheet format or the optional Track-it QA database.

Rotational QA tests without gantry mounts

With its rotating phantom and dedicated phantom top for LINAC QA, OCTAVIUS 4D makes it easy for you to check beam profiles and output constancy at virtually any gantry angle – no gantry mounts needed.

Protocol-specific beam analysis

A click on the “Analyze” button, and MultiCheck will instantly provide you with a complete analysis of each FF or FFF beam profile based on preselected international, vendor-specific or user-defined dosimetry protocols.

Track, trend, document

Export your analyzed beam data to the optional Track-it QA database to document results and easily track changes of all your machine QA data from one place – in less time.

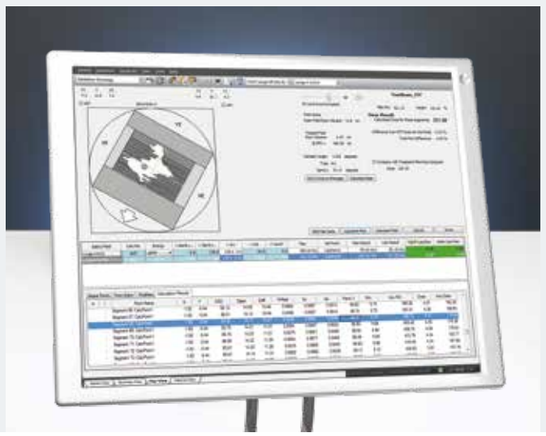
Wide range of TG-142 tests supported

- **CAX deviation**
- **X-ray/electron output constancy**
- **Photon/electron beam profile constancy**
- **X-ray/electron output constancy at different gantry angles**
- **X-ray/electron off-axis factor constancy at different gantry angles**
- **Check of wedge angles**
- **Segmental IMRT (step and shoot) test**
- **Moving Window IMRT (four cardinal gantry angles)**
- **Dose rate and symmetry over time**
- **Light/radiation field congruence (visual)**
- **MLC alignment (visual)**
- **Check of LINAC settings**

OCTAVIUS 4D

Advanced Options

Points selected. Plan verified.



Track. Trend. Documents.

DIAMOND®

Secondary check software for independent patient plan verification

Key Features

- Clinically established solution for precise, independent verification of point dose or MU calculations – replaces phantom-based measurements of less complex, routine plans
- Faster patient plan QA – no LINAC time or phantom setup required
- Dose comparisons at one or multiple dose points
- Advanced VMAT & ROI option for automated inhomogeneity correction
- Optimized calculation capabilities, e.g., DTA analysis, hard and dynamic wedge support, fluence/dose mapping
- Multiple treatment techniques supported, including VMAT, IMRT, 2D/3D, Electrons

Track-it

Web-based data management software for tracking, trending and reporting of QA data

Key Features

- Save time and resources by streamlining data management in patient QA. Export and reload your verification results to and from Track-it with the click of a single button.
- Track and manage patient and machine QA data on one single, consolidated platform and share it fast and effectively across your organization.
- Easily access QA data from multiple sources, devices or satellite sites using a standard web browser.
- Keep track of changes in your verification results over time to initiate action when needed.
- Meet regulatory and audit requirements for a safe and secure documentation of your QA results.

Quick Overview

Description
Modular 4D dosimetry system for patient- and machine-specific quality assurance in radiation therapy

How it works
Rotates synchronously with the gantry and measures the dose in the entire volume as a function of time and gantry angle (4D)

Use
Verification of coplanar and non-coplanar patient treatment plans; LINAC QA measurements

Package includes
OCTAVIUS® detector array, motorized modular 4D phantom with exchangeable phantom top and wireless inclinometer, VeriSoft® software 7.2 or higher, OCTAVIUS® trolley

	OCTAVIUS® 4D Order No.	**1500** L981438	**1000 SRS** L981429	**729** L981398
Applications				
Pre-treatment – field-by-field		●	●	●
Pre-treatment – composite plan		●	●	●
LINAC QA		○	○	○
Treatment Techniques[1]				
3D Conformal (3D CRT)		■	–	■
IMRT (Step & Shoot, Sliding Window)		■	–	■
Arc Therapy (RapidArc®, VMAT)		■	■[2]	□
IGRT with Halcyon™		■	■	□
SRS/SBRT		□	■	–
FF/FFF Beams		■	■	■
Coplanar/Non-Coplanar Beams		■	■	■
Detectors				
OCTAVIUS® Detector 1500	L981382	●	○	○
OCTAVIUS® Detector 1000 SRS	L981381	○	●	○
OCTAVIUS® Detector 729	L981378	○	○	●
Phantom Tops				
Standard Top	T40063.1.004	●	○	●
SRS Top	T40063.1.002	○	●	○
LINAC QA Top	T40063.1.003	○	○	○
Options				
LINAC QA for OCTAVIUS® 4D	L981498	○	○	○
DVH 4D for VeriSoft®	S070009.001	○	○	○
DIAMOND® Secondary Check Software	S070020	○	○	○
Track-it QA Data Management Software	S070027	○	○	○
Accessories[3]				
Phantom Insert Plate Semiflex 3D 0.07	T40056.1.007	○	○	○
Phantom Insert Plate Semiflex 0.125	T40056.1.002	○	○	○
Phantom Insert Plate Farmer	T40056.1.003	○	○	○
Phantom Insert Plate PinPoint 3D	T40056.1.006	○	○	○
Upgrade Packages				
Halcyon™ Upgrade Package	L981578	○	○	○
OCTAVIUS® Modular Phantom Upgrade	E01904	○	○	○
Services				
Service Maintenance Plans		○	○	○
Installation Service		○	○	○
Product Training		○	○	○

Suitability: ■ excellent □ very good – not recommended **Availability:** ● included ○ optional – not available

[1] Dedicated OCTAVIUS® solutions available for CyberKnife® and Helical TomoTherapy®
[2] For field sizes of up to 10 cm x 10 cm
[3] Phantom insert plates for cross calibration of detector array against ionization chamber in OCTAVIUS® 4D phantom

Truly measured, not predicted

Unlike other commercially available systems …. the OCTAVIUS 4D system reconstructs a 3D dose distribution from measured data points rather than predicted dose values.

Stathakis et al.: Characterization of PTW OCTAVIUS4D for patient-specific VMAT QA; Med. Phys. **40**, 071731 (2013)

OCTAVIUS 4D

What your peers think

Selected References

Improvement of off-axis SABR plan verification results by using adapted dose reconstruction algorithms for the Octavius 4D system
P. Jeevanandam et al., Med Phys. **45**, 1738 (2018)

Influence of the jaw tracking technique on the dose calculation accuracy of small field VMAT plans
A.C. Swinnen et al., J Appl Clin Med Phys. **18**, 186 (2017)

Dosimetric characteristics of the novel 2D ionization chamber array OCTAVIUS Detector 1500
T. S. Stelljes et al., Med. Phys. **42**, 1528 (2015)

The Octavius 1500 2D ion chamber array and its associated phantoms: Dosimetric characterization of a new prototype
A. van Esch et al., Med.Phys. **41**, 091708 (2014)

Characterization of a two-dimensional liquid-filled ion chamber detector array used for verification of the treatments in radiotherapy
M. Markovic et al., Med. Phys. **41**, 051704 (2014)

Octavius 4D characterization for flattened and flattening filter free rotational deliveries
C. K. McGarry et al., Med. Phys. **40**, 091707 (2013)

Performance parameters of a liquid filled ionization chamber array
B. Poppe et al., Med. Phys. **40**, 082106 (2013)

Characterization of a novel 2D array dosimeter for patient-specific quality assurance with volumetric arc therapy
S. Stathakis et al., Med. Phys. **40**, 071731 (2013)

OCTAVIUS® 4D
3D Dose Reconstruction

For more information on 3D dose and patient DVH calculation with OCTAVIUS 4D, please download the application note "Dose reconstruction in the OCTAVIUS 4D phantom and in the patient without using dose information from the TPS, D913.200.06/00 (2013)" from www.OCTAVIUS4D.com.

Selected Quotes

"With its twofold detector density, its high dose rate capability and its immediate measurement stability, the Octavius1500 outperforms its predecessors …
…The beneficial impact of the detector density is most prominent in the Oct4D system, for which the average pass rate (PR) is now nearly 100% (99.31 ± 0.37) when using gamma criteria of 2%G,2 mm (10% dose threshold). …"

Van Esch et al.: The Octavius 1500 ion chamber array and associated phantoms; Med.Phys. **41**, 091708 (2014)

"The Octavius 4D phantom with associated Octavius detector 729 ionization chamber array is a dosimetrically and mechanically stable device for pretreatment verification of FF and FFF RapidArc treatments …"

McGarry et al.: Octavius 4D for FF and FFF rotational deliveries; Med. Phys. **40**, 091707 (2013)

"The OCTAVIUS 4D system …was found to be very suitable for patient-specific QA. No angular dependence correction is necessary … The dose rate dependence was measured to be less than 0.5% and the MU to dose response (MU linearity) was found to be very linear for the range of 2-600 MU. Output factors … were found to match within 1% …"

Stathakis et al.: Characterization of PTW OCTAVIUS4D for patient-specific VMAT QA; Med. Phys. **40**, 071731 (2013)

"The OD1500 array's dosimetric characteristics make it well suited for daily clinical use. Stability and interchamber sensitivity variation are well below 0.2% and 0.7%, respectively. … While the OD1500 and the OD729 array's output factors are very similar, Poppe et al. have shown that the Octavius 1000 SRS array is a well suited array for small field dosimetry with output factors exhibiting maximum deviations from diode readings for fields ranging from 1 × 1 cm^2 to 4 × 4 cm^2 of 2.6% and from Semiflex 31010 readings for larger field sizes up to 27 × 27 cm^2 of 2.6% for 6 MV and 1.8% for 15 MV …"

Stelljes et al.: Dosimetric characteristics of the novel OCTAVIUS Detector 1500, Med. Phys. **42**, 1528 (2015)

"…The high detector resolution and sensitivity as well as dose for its linearity and minimum energy dependence allows this detector (OCTAVIUS Detector 1000^{SRS}) to be considered as a useful tool not just for the check of the treatment delivery in radiotherapy but also for the quality assurance of the output and the accuracy of the linear accelerator."

Markovic et al.: 2D ion chamber detector array for plan verification; Med. Phys. **41**, 051704 (2014)

"This study shows that the Octavius 1000SRS detector can be used for high accuracy measurements in clinical photon beam dosimetry. Especially in situations with rapidly changing dose gradients in which a high spatial resolution is needed (such as for IMRT or stereotactical treatments), the detector array offers a high spatial resolution with minimal energy dependence. …"

Poppe et al.: Properties of a liquid-filled ionization chamber array, Med. Phys. **40**, 082106 (2013)

OCTAVIUS 4D

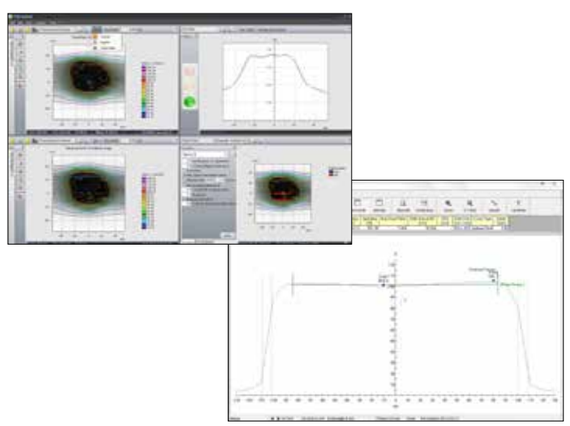
Technical Specifications

OCTAVIUS® 4D Modular Phantom

Design:	Motorized, modular phantom, consisting of base unit with three exchangeable tops
Dimensions:	Phantom cylinder: diameter 320 mm, length 343 mm
Phantom Top Standard:	Diameter 320 mm (293 mm x 317 mm x 137.4 mm)
Phantom Top SRS:	Diameter 170 mm (293 mm x 317 mm x 61 mm)
Phantom Top LINAC QA:	Effective depth 50 mm (293 mm x 317 mm x 25.6 mm)
Weight:	20.7 kg (Base Unit), 8.9 kg (Top Standard), 2.3 kg (Top SRS), 2.2 kg (Top LINAC QA)
Angle range:	± 360°
Rotation reproducibility:	± 1°
Material:	Polystyrene
Density:	1.05 g/cm³
Extent of supply:	Modular base unit ("Rotation" Unit), phantom top, control unit, battery-powered wireless inclinometer
Part No.:	Base unit (T40063), Standard top (T40063.1.004), SRS top (T40063.1.002), LINAC QA top (T40063.1.003)

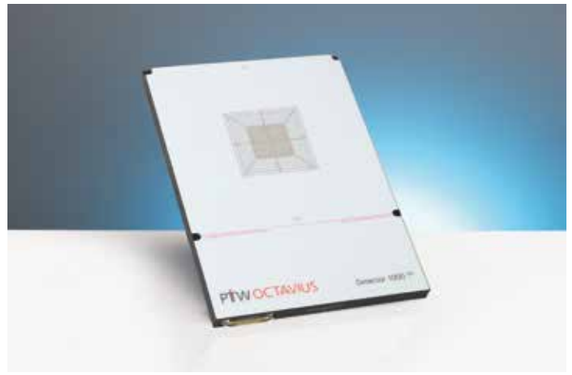
OCTAVIUS® Detector 1500

Detector type:	Plane-parallel vented ionization chambers
Number of detectors:	1405
Detector size:	4.4 mm x 4.4 mm x 3 mm (0.06 cm³)
Detector spacing:	7.07 mm center-to-center
Max. field size:	(2 x 2) cm² … (27 x 27) cm²
Reproducibility:	≤± 0.5%
Dead time:	Zero
Repetition rate:	100 ms
Measured quantities:	Absorbed dose to water (Gy), absorbed dose rate to water (Gy/min)
Resolution:	0.1 mGy, 0.1 mGy/min
Measurement range:	(0.25 ... 48) Gy/min
Energy range:	^{60}Co … 25 MV
Reference point:	7.5 mm below surface of detector array
Housing material:	PS, GRP (frame)
Dimensions:	30 cm x 46.7 cm x 2.2 cm (W x D x H)
Weight:	6 kg
Power supply:	(100 ... 240) V -15%, +10%; (50 ... 60) Hz
PC connection:	Ethernet, RS232
Extent of supply:	OCTAVIUS® Detector 1500, Detector Interface 4000, BeamAdjust Software
Part No.:	L981382



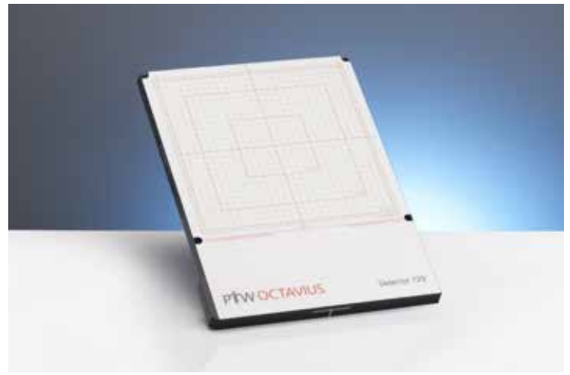
VeriSoft® 7.2 or higher / MultiCheck® 3.6 or higher

Operating system:	Microsoft® Windows® (Windows 7 Professional x32/x64, Windows 8 / 8.1 Pro x32/x64, Windows 10 Pro x32/x64)
Processor:	Multi-core processor, 2,3 GHz or higher
Memory (RAM):	Min. 4 GB, 8 GB recommended
Hard disk:	Min. 500 MB of free space for application software and 1.5 GB of free space for .NET Framework 4.5.1
Screen resolution:	1280 x 1024 or higher
Interfaces:	Network interface
Other:	Windows® Internet Explorer® 8.0 or higher, Adobe® Reader® 7.0 or higher
Extent of supply:	VeriSoft® software for patient QA, MultiCheck® software for machine QA
Part No.:	S070009 (VeriSoft®), S070011 (MultiCheck®)



OCTAVIUS® Detector 1000 SRS

Detector type:	Liquid-filled ionization chambers
Number of detectors:	977
Detector size:	2.3 mm x 2.3 mm x 0.5 mm (0.003 cm³)
Detector spacing:	Center (5.5 cm x 5.5 cm): 2.5 mm center-to-center Outer area (11 cm x 11 cm): 5 mm center-to-center
Max. field size:	(1 x 1) cm² … (10 x 10) cm²
Reproducibility:	≤± 0.5%
Dead time:	Zero
Repetition rate:	100 ms
Measured quantities:	Absorbed dose to water (Gy), absorbed dose rate to water (Gy/min)
Resolution:	0.1 mGy, 0.1 mGy/min
Measurement range:	(0.1 ... 36) Gy/min
Energy range:	^{60}Co … 25 MV
Reference point:	9 mm below surface of detector array
Housing material:	GRP
Dimensions:	30 cm x 42 cm x 2.2 cm (W x D x H)
Weight:	5.4 kg
Power supply:	(100 ... 240) V -15%, +10%; (50 ... 60) Hz
PC connection:	Ethernet, RS232
Extent of supply:	OCTAVIUS® Detector 1000 SRS, Detector Interface 4000, BeamAdjust Software
Part No.:	L981381



OCTAVIUS® Detector 729

Detector type:	Plane-parallel vented ionization chambers
Number of detectors:	729
Detector size:	5 mm x 5 mm x 5 mm (0.125 cm³)
Detector spacing:	10 mm center-to-center, 5 mm edge-to-edge
Max. field size:	(2 x 2) cm² … (27 x 27) cm²
Reproducibility:	≤± 0.5%
Dead time:	Zero
Repetition rate:	200 ms
Measured quantities:	Absorbed dose to water (Gy), absorbed dose rate to water (Gy/min)
Resolution:	0.1 mGy, 0.1 mGy/min
Measurement range:	(0.25 ... 48) Gy/min
Energy range:	^{60}Co … 25 MV
Reference point:	7.5 mm below the surface of the array
Housing material:	GRP
Dimensions:	30 cm x 42 cm x 2.2 cm (W x D x H)
Weight:	5.4 kg
Power supply:	(100 ... 240) V -15%, +10%; (50 ... 60) Hz
PC connection:	Ethernet, RS232
Extent of supply:	OCTAVIUS® Detector 729, Detector Interface 4000, BeamAdjust Software
Part No.:	L981378

OCTAVIUS® 4D – ready to use

OCTAVIUS® 4D Trolley

Description:	Mobile cart for easy system setup on patient couch and safe equipment storage
Weight:	35.5 kg
Dimensions:	93.6 cm x 64 cm x 60 cm, height of lifting plate: 85.8 cm
Part No.:	T40057

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PTW is a global market leader for dosimetry and quality control solutions in radiation medicine, serving the needs of medical radiation experts in more than 160 countries worldwide. Starting with the famous Hammer dosemeter in 1922, the German manufacturer is one of the pioneers in medical radiation measurement, known for its unparalleled quality and precision.

For PTW, making medical radiation safer is both a passion and lifetime commitment. The family-run high-tech company operates one of the oldest and largest accredited calibration laboratories in the field of ionizing radiation and established THE DOSIMETRY SCHOOL to promote the exchange of knowledge in clinical dosimetry.

For more information on OCTAVIUS® 4D systems, visit WWW.OCTAVIUS4D.DE
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Knowing what responsibility means