

# DOLPHIN<sup>®</sup> & COMPASS

## Transmission Detector for a truly independent Patient QA

### Most Advanced Patient QA

DOLPHIN allows the clinic to set a new standard in radiation treatment quality. Compared with conventional QA solutions, DOLPHIN provides a significantly higher treatment dose measurement resolution and the capacity to detect and verify potential dose discrepancies. Patient QA workflow efficiency is increased with DOLPHIN's wireless design and ease of setup.

### New features

Measurement of 6MV and 10MV photon beams, flattened and FFF.

New Monte-Carlo-based detector model with enhanced accuracy delivers high error detection sensitivity.

Online ready\*

## Key benefits

### — Ready to measure in 60 seconds

Simply attach DOLPHIN to the gantry with one „click-in“ at the same aligned and reproducible position with respect to the beam. Along with the cable-free design, this allows operation to start immediately.

### — Full field measurement

The DOLPHIN detector design enables measurements at all beam shapes and field sizes: entire large fields up to  $40 \times 40 \text{ cm}^2$  at isocenter plane as well as small fields at high precision. As opposed to other solutions, with DOLPHIN the actual patient plan can be measured, which helps prevent additional phantom plans or cumbersome combinations of multiple measurements.

### — 3D dose analysis in the patient's CT

The actual measured dose delivery is reconstructed to the patient's anatomy by the COMPASS software, providing a 3D analysis of the actual dose impact. The TPS-class dose engine embedded in COMPASS enables a truly independent second calculation and comparison with the TPS plan data.

### — Online ready\*

Future online patient treatment monitoring will enable measurements of the actual treatment delivery during each fraction. This will enhance the operator's confidence that the entire treatment was delivered safely.

## The perfect package: transmission detector plus sophisticated TPS-class verification software

### COMPASS 2018

#### CALCULATION BASED TPS CHECK & DOLPHIN MEASUREMENT BASED DELIVERY CHECK

- Instant automatic check of the measured data with result of „pass“ or „evaluate“
- Fast 3D Dose reconstruction on the actual patient CT
- TPS-class collapsed-cone algorithm
- Dose difference calculation with proven TPS tools like DVH, 3D Gamma and dose difference maps
- LINAC-specific independent beam model
- Automatic measurement mode with beam trigger

#### Verification power

Understand the source of deviations and the clinical impact of the actual delivery.

### DOLPHIN

#### TRANSMISSION DETECTOR FOR PRE-TREATMENT QA, ONLINE MONITORING\*, AND MACHINE QA

- Precise ionization chamber technology, 1513 chambers, fast sampling time
- Measurement at photon beam energies of 6MV and 10MV, flattened or FFF
- Embedded sensor for physical gantry angle measurement, resolution  $\pm 1^\circ$
- Cable-free design, battery powered, secure WiFi
- Double lock for maximum safety

#### Configured for Machine QA

The DOLPHIN's sensor layout is also optimized for dosimetry constancy checks (Machine QA), to be used in conjunction with myQA Machines and myQA FastTrack.

Dolphin-Poster\_Rev.2\_0618\_E | © IBA 2018 | All rights reserved | Manufacturer: IBA Dosimetry GmbH  
Technical specifications and product features are subject to change without prior notice.

\*DOLPHIN is released for pre-treatment QA. Approval of online use during patient treatment is pending with LINAC manufacturers.

### IBA Dosimetry

Integrated Quality Assurance

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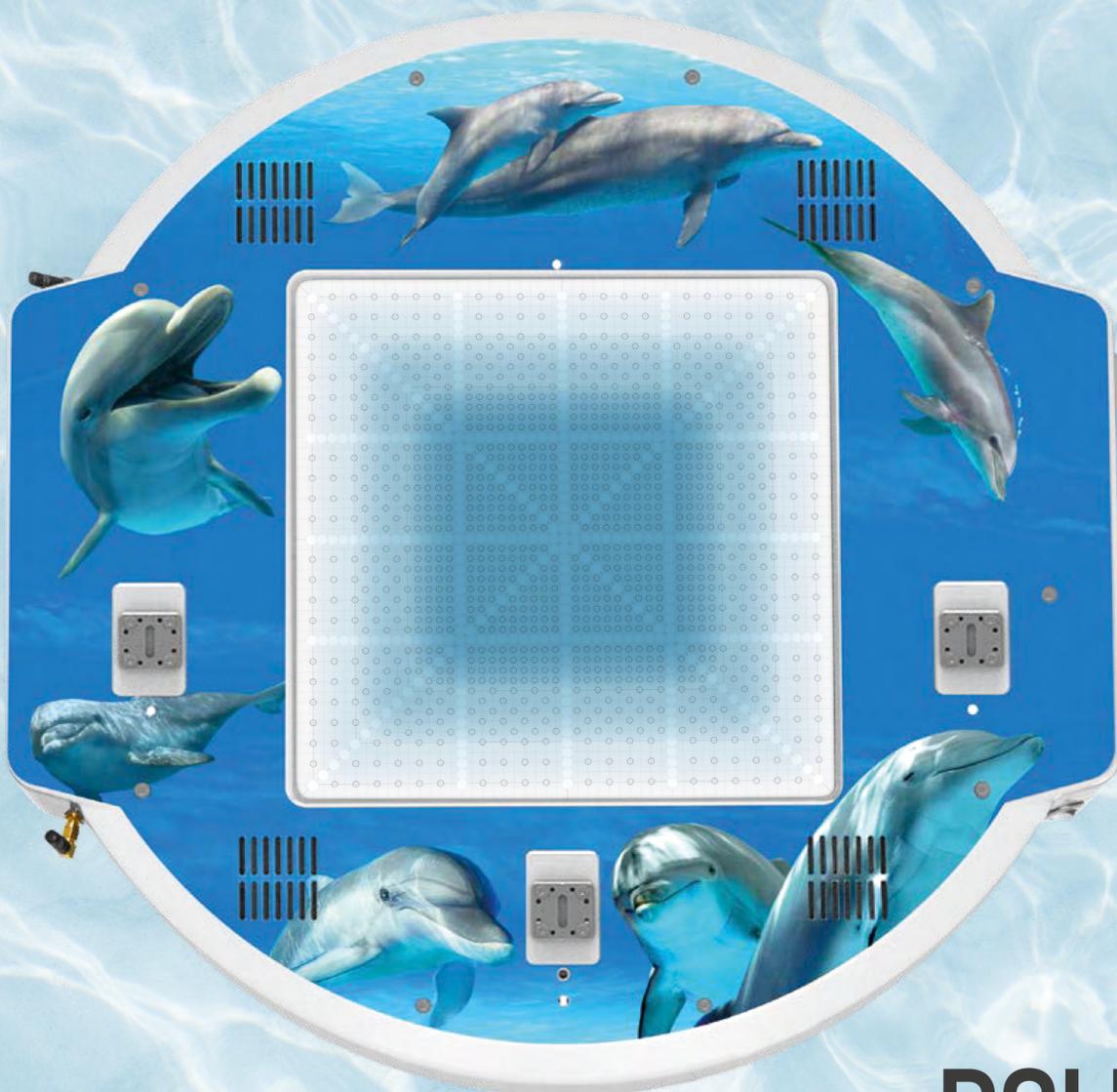
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## DOSIMETRY

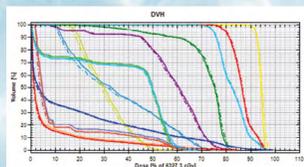
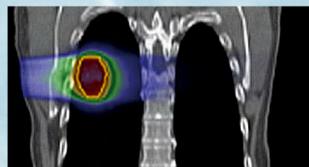


# PATIENT QA



## DOLPHIN® Transmission Detector

### FOCUS ON EVERY PATIENT



**1513** ionization chambers in DOLPHIN detector

**40 x 40 cm<sup>2</sup>** full field size for QA of largest fields in one setup

**5 mm** chamber spacing in the inner area for high accuracy

**60 sec.** setup and readiness for QA measurements

#### Personalized Therapy Plan

In radiation therapy, patients are treated by a therapeutic photon beam that's delivered by a linear accelerator (LINAC). Each treatment is individual and has to deliver the right amount of radiation to the right spot while sparing the healthy tissue. The physicist or dosimetrist uses a treatment planning system (TPS) to calculate each radiation treatment plan. The TPS combines the characteristics of the specific LINAC, its desired motion, and the volumetric modulation of the radiation beam. This makes radiation therapy plans highly complex.

#### Plan Verification

To ensure patient safety throughout the treatment, medical physicists execute an independent and redundant secondary dose assessment. In addition, the physicist performs an extra simulated treatment. For this, the DOLPHIN is mounted on the LINAC. Then the LINAC performs the planned arc movement and radiates the personalized plan exactly like the patient treatment, while the real dose distribution in the full field size is measured. The accuracy of the measurement device is key for identifying any potential deviation or errors.

#### Detecting Deviations

Physicists are required to compare the measured dose distribution with the originally desired outcome. They use expert software to reconstruct the radiation dose in the patient's anatomy from the measured data in both 2D and 3D. In the rare case of a measured discrepancy, the system provides software tools to find the root cause. Based on these findings the plan can be modified in the TPS. Most plans comply during the first test run and will be approved by the physicist. Now everything is ready to begin the first fraction of the treatment.

DOLPHIN is a high-precision transmission detector and is made to protect you from unwanted delivery error in the treatment irradiation.

**We want you to be safe and comfortable.**

**That's why we invented DOLPHIN.**

Keeping an eye on you  
and your safety!

PROTECT +  
ENHANCE +  
SAVE LIVES

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