

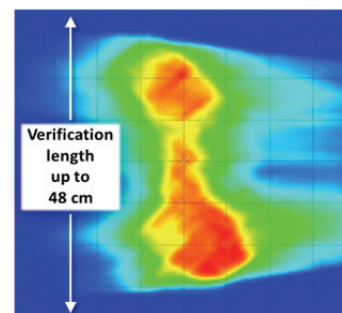
## OCTAVIUS<sup>®</sup> 4D

### Verification of Long Radiation Fields

#### 1 General Information

Until recently, very long radiation fields, such as typically encountered in craniospinal treatments, could not be verified with OCTAVIUS<sup>®</sup> 4D as the dimension of the dose volume was not completely covered by the field of view of the OCTAVIUS<sup>®</sup> detector.

Thanks to a redesign of the OCTAVIUS<sup>®</sup> 4D Control Unit / Phantom and a new dose reconstruction algorithm implemented in VeriSoft<sup>®</sup> 7.1, it is now possible to verify large radiation fields. The new **VeriSoft<sup>®</sup> Compose** feature allows you to compose two VeriSoft<sup>®</sup> measurements and thus increase the length of your OCTAVIUS<sup>®</sup> detector array from 26 cm to 48 cm (OCTAVIUS<sup>®</sup> Detector 729 and 1500) or from 11 cm to 20 cm (OCTAVIUS<sup>®</sup> Detector 1000<sup>SRS</sup>).



#### 2 Functionality and Workflow

Please perform the following steps to measure long radiation fields with OCTAVIUS<sup>®</sup> 4D:

##### Step 1: Phantom setup for TARGET measurement

- ▶ Install OCTAVIUS<sup>®</sup> 4D Rotation Unit / 4D Phantom on your treatment table.
- ▶ Align it to isocenter as usual.
- ▶ Shift OCTAVIUS<sup>®</sup> 4D Rotation Unit / 4D Phantom in TARGET direction. This setup ensures that only the gearbox of the rotation unit will be irradiated (see figure on the right).

##### Step 2: TARGET measurement in VeriSoft<sup>®</sup>

- ▶ Open “Measurement” window in VeriSoft<sup>®</sup> 7.1.
- ▶ The “Measurement” window displays “Face Out” orientation (☺), which is the normal orientation of the OCTAVIUS<sup>®</sup> 4D Rotation Unit (gearbox facing in GUN direction).
- ▶ Start measurement and deliver plan.
- ▶ Save measurement as an “xcc” file (.xcc). We recommend to extend the file name with the shift direction and shift value.

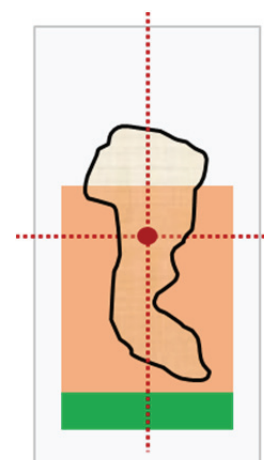


# PRODUCT INFORMATION




## Step 3: Phantom setup change for GUN measurement

- ▶ Set gantry to 0°.
- ▶ Rotate OCTAVIUS® 4D Rotation Unit / Phantom by 180°.
- ▶ Align it to isocenter.
- ▶ Shift OCTAVIUS® 4D Rotation Unit / Phantom in GUN direction using the same shift value as before. This setup ensures that only the gearbox of the OCTAVIUS® 4D Rotation Unit will be irradiated (see figure on the right).



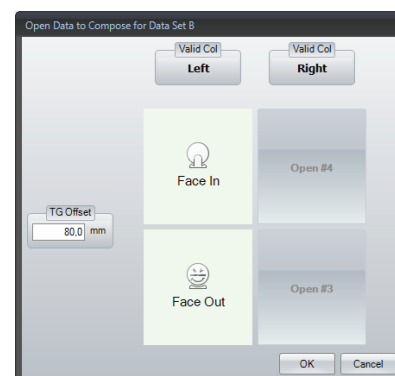
- Detector Electronics
- Phantom / FOV detector
- Isocenter
- Target volume

## Step 4: GUN measurement in VeriSoft®

- ▶ In the “Measurement” window, select *Face In* orientation (  ) for OCTAVIUS® 4D Rotation Unit rotated by 180° (gearbox facing in TARGET direction). This inverts the rotation direction of the OCTAVIUS® 4D phantom to ensure synchronous rotation with the gantry.
- ▶ Start measurement and deliver plan.
- ▶ Save measurement as an “xcc” file (.xcc).

## Step 5: Dose reconstruction in VeriSoft®

- ▶ Select *File* → *Data Set A/B* → *Compose*. The *Open Data to Compose dialog* will appear (see figure on the right).
- ▶ Click the “Open #1” button to load „Face Out“ measurement.
- ▶ Click the “Open #2” button to load “Face In” measurement.
- ▶ In the „TG Offset” input box, enter the shift value in [mm].
- ▶ By clicking *OK*, the “Face Out” and “Face In” measurements will be automatically composed.



## Step 6: Evaluation in VeriSoft®

- ▶ Compare the measured and the planned dose distribution. Please note that treatment planning should be performed on a large OCTAVIUS® cylinder structure. The large CT dataset can be found here: <http://www.ptw.de/index.php?id=2469>

## 3 Upgrade Package

To be able to use the VeriSoft® Compose feature, current OCTAVIUS® 4D users require a hardware upgrade. Please order the below hardware exchange package to upgrade your system and return your old OCTAVIUS® Control Unit (T40058) and wireless inclinometer (T43036) to PTW or your PTW sales and service partner, along with a copy of the delivery note.

### Order No. L981567 OCTAVIUS® 4D Hardware Exchange Package includes:

- New OCTAVIUS® 4D Control Unit
- New wireless inclinometer
- VeriSoft® 6.x to 7.x software upgrade