

10X6-60DAP

'DAP' Chamber Manual

Ideal for Dose Area Product (DAP) measurement of small beams such as Pan-Dental or CBCT-Dental.



Overview



The 10X6-60DAP ion chamber has been specifically designed for use in measuring dose area product (DAP) for dental applications (e.g. cone beam CT, pan-dental, etc.). The chamber's capabilities can be extended to small field-of-view general DAP usage provided the chambers usage remains within its specifications. Included with the 10X6-60DAP is a mounting bracket to simplify chamber positioning and location, a package of museum putty for ease of mounting the bracket, and a sheet of Gafchromic film to easily visualize the x-ray beams position.

Making a DAP Measurement



To measure DAP, the chamber needs to be centered over the exit surface of the machine's x-ray beam. To facilitate centering, the active area has been outlined on the chamber with a white circle. A positioner has been included to hold the chamber while it is being exposed.

IMPORTANT: The entire x-ray beam must be contained within the 80 mm diameter of the chambers' sensitive area (as marked on the chamber)
(Field of view = 57 mm x 57 mm)

Usage Guide - Method 1



Mount the chamber bracket

Note: Determine the location of the x-ray beam where it exits the x-ray source. When positioning the bracket, it must be at the x-ray source, not at the imager.

Method 1 – using the machine's imager

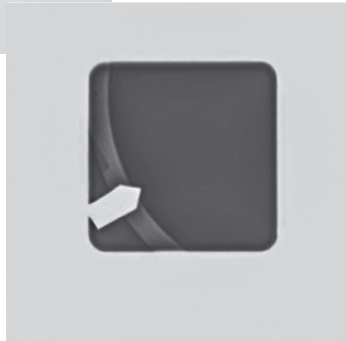
- Mount the chamber bracket such that the entire beam will pass through the bracket's open center. Use masking tape or the supplied museum putty to secure the mounting bracket.

Usage Guide - Method 1



- Expose and view on the machine's monitor

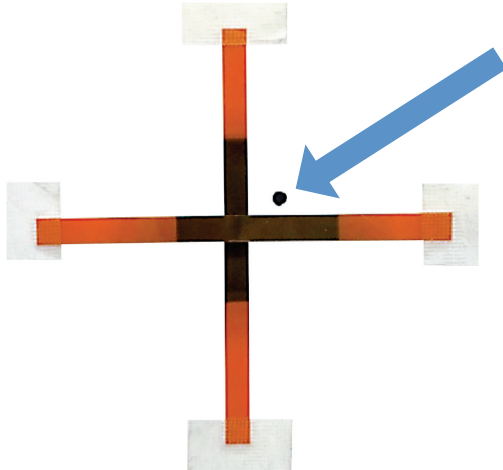
IMPORTANT: None of the holder's radiopaque markers should be visible. If one is seen, re-position the chamber in the opposite direction of the arrow point and repeat the exposure.



Example of chamber misalignment

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Usage Guide - Method 2



Method 2 - Location using Gafchromic strips.

Locate the center of the X-ray beam at the X-ray source (not at the imager) by taping Gafchromic film strips vertically and horizontally as shown and expose as necessary to produce an image that allows locating the beam edges.

Usage Guide - Method 2



- Position the center of the chamber holder over the marked position. Use tape or the supplied museum putty to secure the holder to the exit surface.

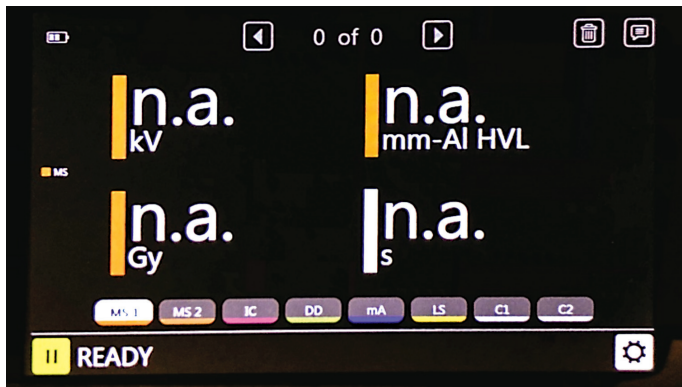
Usage Guide - Method 1/2



- Mount the chamber in the bracket and locate the chamber cable such that it will not interfere with any movement of the x-ray mechanicals during the exposure.

Making A DAP Measurement With Accu-Gold Touch

- Connect the chamber to the AG digitizer's ion chamber port (ICH).
- Activate the Touch with the Power button and select Start ▶.
- The display will show “IC stabilizing”
- Once stabilized, the display will briefly display “Initializing” followed by “Ready”.
- Now make an exposure.

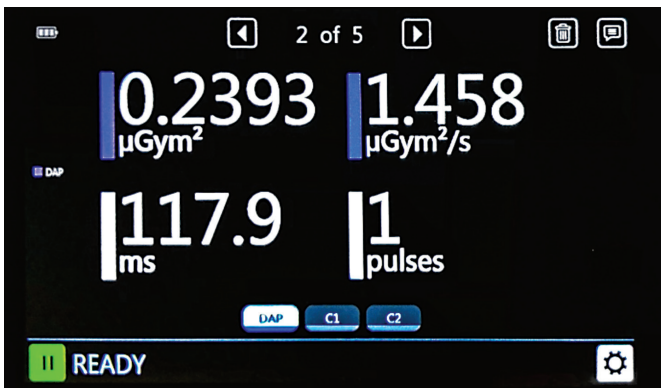


Note: you can also measure kVp & hvl simultaneously with DAP. Connect the multi-sensor and mount it on the imager. Carefully position the cables so the machine's motion will not interfere or disturb them.

Making A DAP Measurement With Accu-Gold Touch

- Following the exposure, the software will display DAP Dose, DAP Dose Rate, Exposure time, and the number of pulses.

Note: When you first turn on AccuGold or AccuGold Touch and select measure, the software may not display DAP units. The DAP measurements will be displayed following the first exposure.



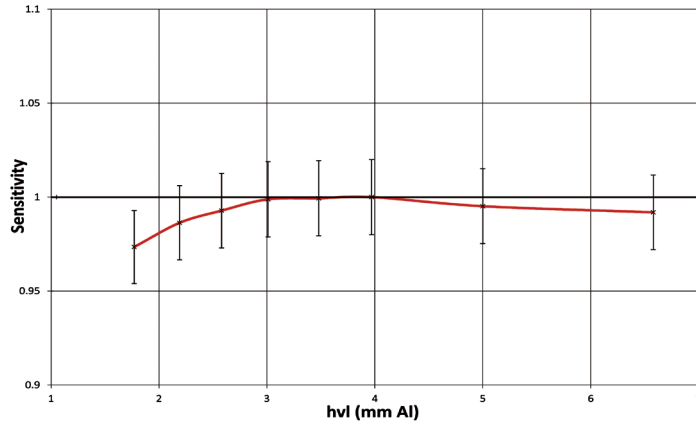
If you are familiar with Accu-Gold Excel, we have included a DAP template and instructions. The template provides a simple interface and produces DAP results directly in Excel.

DAP Mode Specifications



Rate Specifications	11 pGy-m ² /s - 110 μGy-m ² /s
Exposure Specifications	56 pGy-m ² - 290 mGy-m ²
Exposure Rate Dependence	<5% over rated rate specification
Calibration Accuracy:	±5% using X-rays @ IEC RQR-8 100 kV & 3.97 mm Al HVL
Energy Dependence	±5%, RQR-3 to RQR-10 (50 kV-2.4 mm Al HVL to 150 kV-6.6 mm Al HVL)
Chamber Beam Attenuation	6% ±2% over energy range RQR3 to RQR10

RQR
Energy
Response



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