

## APPLICATION GUIDE – DENTAL CBCT AQ

THE **IVInomad** DOSIMETER IS IDEAL FOR MEASURING THE KERMA AREA PRODUCT (KAP) ON CBCT DEVICES. THANKS TO ITS **RADIOLUCENT** PROBE, IVINOMAD ALLOWS YOU TO PERFORM BOTH **IMAGE QUALITY CONTROL** AND THE **KAP MEASUREMENT** IN A SINGLE EXPOSURE.

### REQUIRED EQUIPMENT

- 1 IVInomad point scintillator probe
- 1 IVInomad photometer
- 1 tripod
- 1 CBCT phantom (e.g.: DIN 6868-161 CBCT Image Quality Test Phantom)



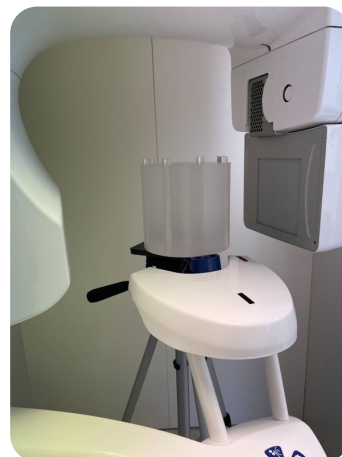
### STEP 1

#### PHANTOM POSITIONING

Remove patient head and chin support.

Place the tripod in the center of the CBCT and put the phantom on the tripod platform.

Adjust the tripod's horizontal and vertical position to center the phantom within the CBCT's field of view. Make sure the entire CBCT beam passes through the phantom.



On the pictures above, a 16 cm CTDI head phantom is used, but it may be replaced with a regulatory phantom intended for CBCT image quality control.

**STEP 2**
**IVINOMAD SETUP**
**OPTION 1 : ON THE PHANTOM<sup>1</sup>**

Insert the probe into the central insert, until the center of the phantom, ensuring that its sensitive area is in the X-ray field.



<sup>1</sup> if suitable on the phantom

**OPTION 2 : ON THE DETECTOR PLATE**

Put the probe vertically on the CBCT detector plate, ensuring that its sensitive area is centered in the X-ray field.

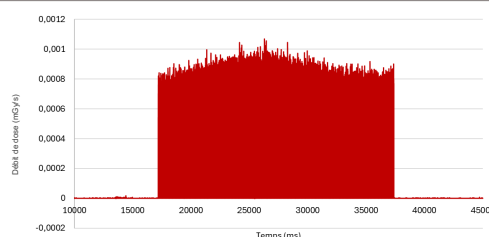

**STEP 3**
**KAP MEASUREMENT**

Configure the IVInomad software for the CBCT beam quality<sup>2</sup>, start the measurement, and then, launch the protocol most frequently used in clinical practice.

At the end of the irradiation, the air Kerma  $K_{air}$  corresponds to the total Dose displayed.



Deduce the beam area  $S$  at the detector plate based on the field size indicated by the CBCT device.



Real-time dose profile on IVInomad software.

**ON THE PHANTOM**

Measure the distance  $D$  between the measurement point at the phantom center and the detector.

The KAP is then defined as follow :  $KAP = \frac{K_{air}}{D^2} S$

<sup>2</sup> See IVInomad user manual

**ON THE DETECTOR PLATE**

The KAP is defined as follow:  $KAP = K_{air} S$

**TIPS**

**Tip #1:** For saving time and given the density of the IVInomad probe, invisible on images, KAP measurement can be performed simultaneously with image quality control, without degrading the images.

**Tip #2:** You may also measure the beam size using REACT rulers and calculate  $S$  accordingly.

