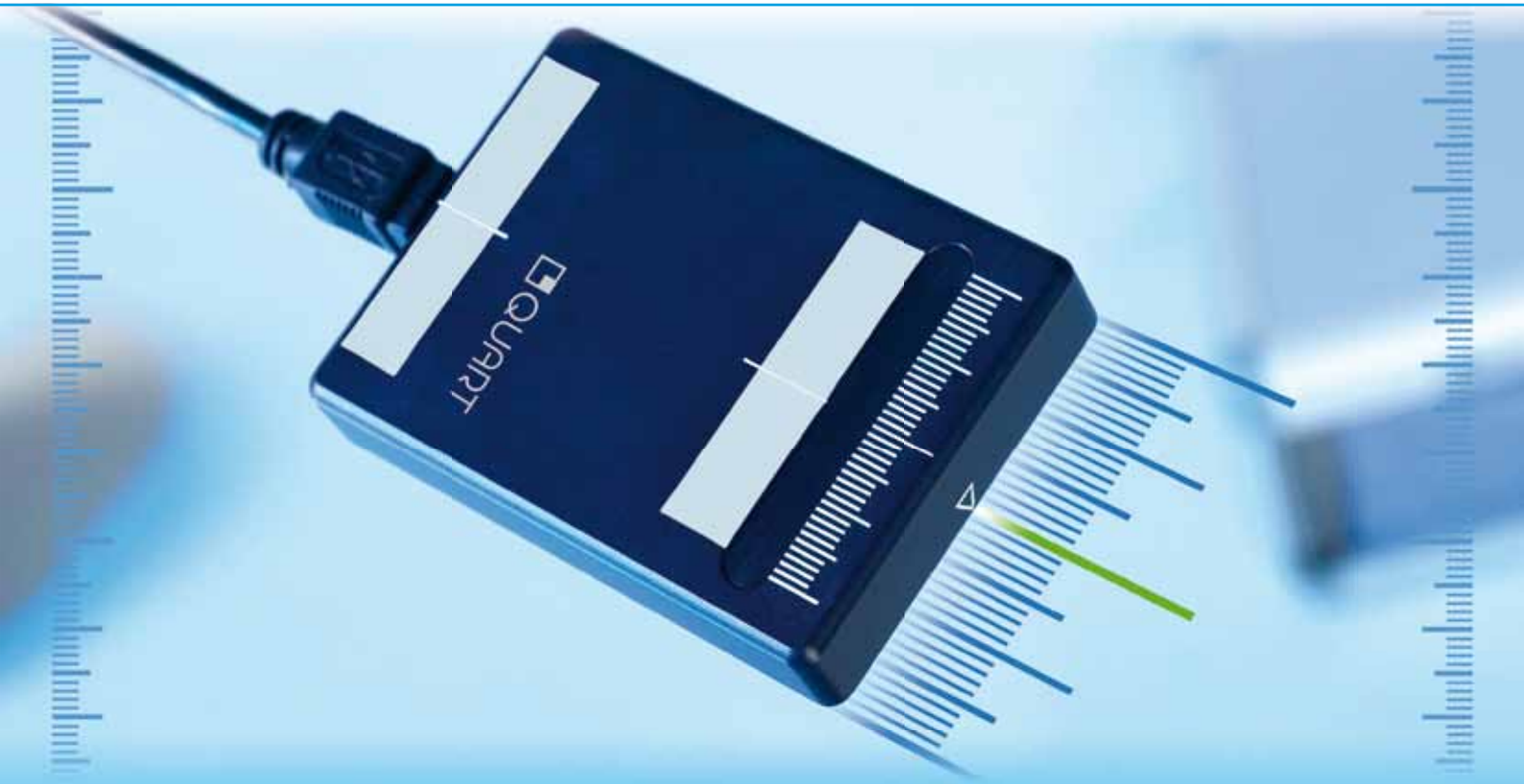


QUART nonius

# *Electronic X-Ray Ruler*



## X-Ray Field & Fan X-Ray Beam Measurement

**The QUART nonius is an easy-to-use but very sophisticated measuring instrument to verify size and quality of x-ray fields. It can also be used to analyse the properties of fanned x-ray beams.**

The digitisation in x-ray technology makes traditional film/screens less available. Originally, they were used for checks on x-ray beam properties. Today, the QUART nonius performs the same task. And, it provides even more substantial features.

The QUART nonius can be used to verify if the light visor matches the actual x-ray field. In addition, the nonius provides the option to assess the position and width as well as the dose profile of fanned x-ray beams.



The QUART nonius is technically highly flexible: it can be used in digital as well as conventional x-ray technology. In any case, its precision is an absolute strong point – as it goes down to the nonius (0.1mm).

### Mode of Operation

Operating the QUART nonius is easy and straight forward:

- \_ Connect the device via USB to a Laptop or Tablet PC.
- \_ Position the head unit at the respective position.
- \_ Use light field or a reference point for positioning.
- \_ Trigger the QA/QC exposure.
- \_ Evaluate the results.

Data is transferred to the PC in real time where the result is displayed and visualised. All results are automatically saved and can be loaded into the software at a later point of time for evaluation purposes. The software also provides a protocol function including hardcopy print-out.

The QUART nonius is equipped with a USB cable and comes with associated software in a compact carrying case. It can be hooked up to any Laptop or Tablet PC with Windows OS.

To position the device fast and reliably (also in vertical position), the optional QUART bridge holder is available.

### Scope of Delivery

- \_ QUART nonius electronic ruler
- \_ QUART nonius Software  
(Windows 7, Vista, XP / English + German)
- \_ USB cable (2.5m) / User Guide / Transport Case
- \_ QUART bridge Universal Holder (optional)



## Technical Data

### Accuracy / Resolution

$\pm 0.1$  mm

### Exposure Threshold

Dose  $\geq 200$   $\mu$ Gy / Dose Rate  $\geq 20$   $\mu$ Gy/s

### Minimum Exposure

(ref. Application Sections)

### Sensor Area

40 mm **Length** (16 Active Sensor Elements)

### Temperature Range

15 – 40 °C

### Plug & Play Component

### Connectivity

Standard USB (2.0)

### Operating System

Windows 7, Vista, XP

### Weight

190 g (without USB Cable)

### Size of Head Unit

55 x 75 x 15 mm (WxHxD)

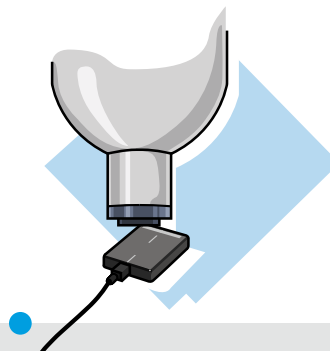


Evaluation of X-Ray Field



Evaluation of Fan X-Ray Beam

## Applications – Dental



### Intraoral

To accurately assess field properties of intraoral equipment, a special holder is provided. 4 exposures are required for a substantial evaluation.

**Minimum Exposure Intraoral: 60 kV / 5 mAs / SID 40 cm**

To assess the properties of fanned beams of panoramic units, directly put the device in front of the secondary aperture or directly onto the detector. In addition to information on the position of the beam, both the width of the fanned beam and its dose profile are also evaluated.

**Minimum Exposure OPG: 65 kV / 6 mA / SID 65 cm**

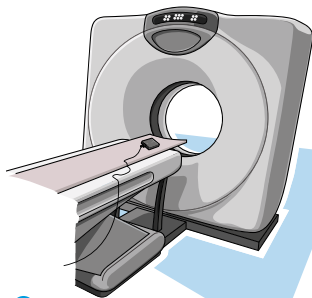
To evaluate the x-ray field of CBCT units, one exposure on each side of the field is required. Depending on positioning, both overexposures and underexposures are detected.

**Minimum Exposure CBCT: 65 kV / 10 mA / SID 70 cm**



### Panoramic / CBCT / 3D

## Applications – Radiology



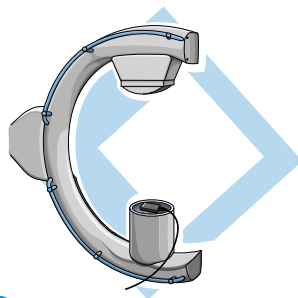
**Computed Tomography**

To evaluate width and dose profiles of fanned x-ray beams in CT, the device is positioned on the patient table towards the rotational direction of the scanner. Only one pass is sufficient to adequately assess the parameters.

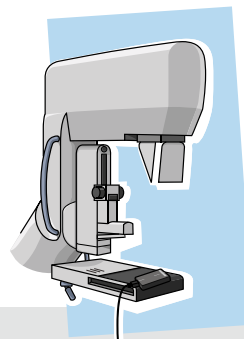
**Minimum Exposure CT: 100 kV / 50 mA / SID 100 cm**

The nonius is highly sensitive. It can also be used to evaluate radiation fields of fluoroscopy equipment. 4 exposures are required for a full-field assessment. The protocol function of the software makes documentation of test results very easy.

**Minimum Exposure Fluoro: 70 kV / 3 mA / SID 100 cm**



**Fluoroscopy**



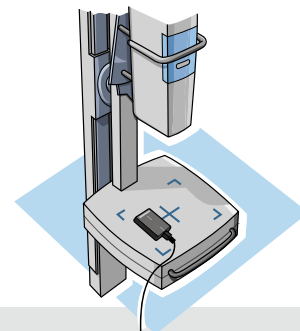
**Mammography**

At mammography installations the nonius is mainly used to check the field alignment towards the thorax wall side. The measuring precision exceeds the one acquired with standard phantoms or other tools. Depending on positioning, the dose rate profile within the radiation field (heel effect) can also be visualised.

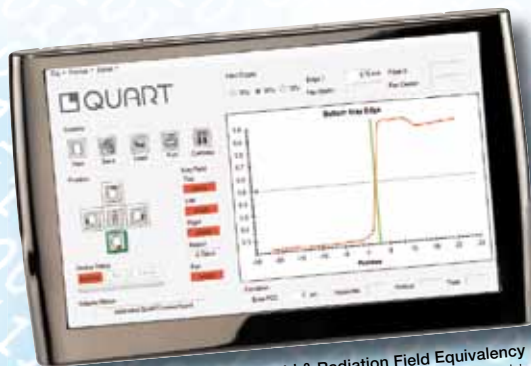
**Minimum Exposure Mammo: 28 kV / 25 mAs / SID 65 cm**

For a comprehensive evaluation of x-ray field properties at radiography equipment, DR and CR systems, 4 exposures are required. Depending on positioning, both overexposures and underexposures are detected and visualised. The protocol function of the software makes documentation of test results very easy.

**Minimum Exposure CR/DR: 65 kV / 10 mAs / SID 100 cm**



**DR / CR**



**Evaluation of Light Field & Radiation Field Equivalency**  
For this field side, the light field is 2.7mm off the actual radiation field.

### **QUART nonius**

The *nonius* can be applied in all fields of radiography: Dental, CR/DR, Mammography, CT, ...

### **Quick Operation**

- 1** Align the light field with the *nonius* center line, or position the *nonius* directly on the edge of the image receiver.
- 2** Expose.
- 3** Read the results from the display of the connected computer. Save or print out protocol.



The use of the QUART *nonius* is incredibly easy. Only 3 steps are required:

- 1** Position.
- 2** Expose.
- 3** Evaluate.



**We help to help others**

QUART is a proud Supporter of *Medecins sans Frontieres*

