

## NONIUS

### X-Ray Field / Fanned Beam Measurement

The 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 NONIUS performs the same task and it provides even more substantial features.

The 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 NONIUS is technically highly flexible: it can be used in digital as well as conventional X-Ray Technology with a resolution of 0.01 mm.

### Mode of Operation

Operating the 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 in time for evaluation purposes. The software also provides a protocol function including hardcopy print-out.

The 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 Bridge Holder is available.



### Scope of Delivery

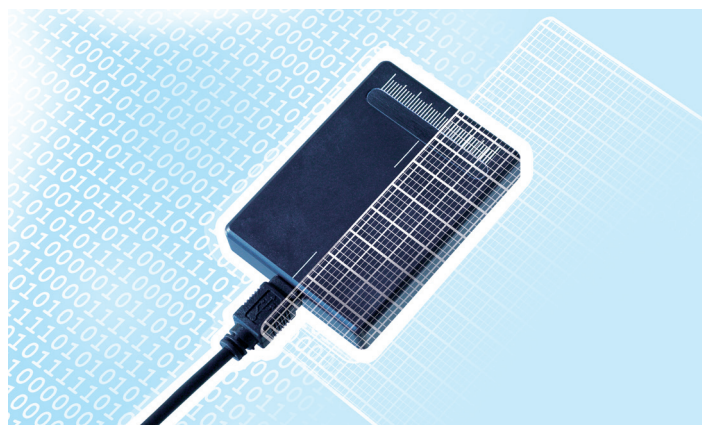
- NONIUS Measuring Instrument
- NONIUS Software (Windows 7, Vista, XP / English+German)
- USB cable (2.5 m) / User Guide / Transport Case
- Universal Bridge Holder (optional)

### NONIUS

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

### 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 NONIUS is incredibly easy. Only 3 steps are required:

1. Position.
2. Expose.
3. Evaluate.

## Technical Data

Accuracy / Resolution . . . . .	+/- 0.01 mm
Exposure Threshold . . . . .	Dose ¶ 200 µGy / Dose Rate ≥ 20 µGy/s
Minimum Exposure . . . . .	(ref. Application Sections)
Measurement Method . . . . .	Open Measurement — No Added Filtration
Connectivity . . . . .	Standard USB (2.0)
Plug & Play Component	
Temperature Range . . . . .	15 – 40°C
System Requirements . . . . .	Pentium III, 128 Mb RAM, min. 1x USB
Operating System . . . . .	Windows 7, Vista, XP
Sensor Area . . . . .	40 mm Length (16 Active Sensor Elements)
Weight . . . . .	190 g (without USB Cable)
Size of Head Unit . . . . .	55 x 75 x 15 mm (W x H x D)



## Applications — Dental

### Intraoral • Panoramic / CBCT / 3D

- 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, put the device directly 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 mAs / 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 mAs / SID 70 cm**

## Applications — Radiology

### Computed Tomography • Fluoroscopy

- 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 mAs / 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 mAs / SID 100 cm**

### Mammography • DR / CR

- 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**

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