

# Probes & Accessories

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INDEPENDENT X-RAY  
QUALITY ASSURANCE



# Let's work together to ensure X-ray safety and quality



**RTI is a world-leading manufacturer of quality assurance (QA) solutions. In 1981, RTI invented the first X-ray QA system for diagnostic radiology. Since then, innovation has been at the heart of our corporate philosophy and we have pioneered many QA procedures. We continue to invest heavily in R&D to push forward the very edge of X-ray QA, across all modalities.**

Longer and more active lives, combined with a string of new examination techniques, have made diagnostic radiology the most widely used medical imaging technology. Diagnostic imaging growth can be seen throughout the healthcare sector, including orthopaedic and vascular

imaging, plus full body scanning. This will be a continuing trend, thanks to a shift in focus to more advanced healthcare globally.

As X-ray examinations increase, there is a higher risk of patient and staff exposure to levels of X-ray radiation that could result in negative health implications. As a long-standing member of, among others, IEC, AAPM and MITA, RTI participates in work to research, develop and evolve diagnostic radiology standards. A key company-wide goal is also to educate customers and partners, sharing our deep knowledge of X-ray QA best-practice to protect patients and staff in an ever more complex operational environment.

**Join our mission for patient health and safety!**

# Probes & Accessories

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# Everything you need for X-ray QA

Get more from your Piranha or Cobia X-ray Quality Control System with our comprehensive range of easy-to-use probes and accessories.

Everything you need from robust cases and stands to probes and adapters.



# Mako Probes & Modules



## Mako R/F Probe

The groundbreaking new Mako R/F Probe offers industry-leading accuracy ( $\pm 1.5\%$  kV measurement uncertainty) and sensitivity from lowest to highest dose rates. The unique design provides a no-fuss experience, with simple setup in the X-ray beam, flexible connection to the Mako Base Unit and a low radiological footprint, perfect for measurement without affecting the AEC.

**Art. No: 9765011-00**

### Specifications with Mako

Size	122.5 x 28 x 14.5 mm (4.82" x 1.1" x 0.57")
Weight	55 g (1.94 oz)
Exposures needed for measurement	One
Standard measurement parameters	kVp, dose, dose rate, HVL, TF, exposure time, pulses, pulse rate and dose/pulse
Waveforms	Simultaneous kV and dose rate
<b>kV</b>	
Range	35 – 155 kV
Uncertainty	$\pm 1.5\%$
<b>Dose</b>	
Range	1 nGy – 9999 Gy
Uncertainty	$\pm 5\%$ or 5 nGy
<b>Dose Rate</b>	
Range	1 nGy/s – 500 mGy/s
Uncertainty	$\pm 5\%$ or 10 nGy/s
Trigg level	25 nGy/s
<b>HVL</b>	
Range	1-14 mm Al
Uncertainty	$\pm 10\%$
Min Dose Rate	0.1 $\mu$ Gy/s



## Mako Mammo Probe

The revolutionary new Mako Mammo Probe offers best-in-class accuracy ( $\pm 1.5\%$  or 0.5kV) and performance, covering the full clinical kV range from 18-49kV, without the need to change probe above 40kV (unique in the market). The Mako Mammo Probe has been designed for ultimate performance across all Mammography systems, including the latest beam qualities with Titanium filters.

**Art. No: 9765012-00**

### Specifications with Mako

Size	122.5 x 28 x 14.5 mm (4.82" x 1.1" x 0.57")
Weight	55 g (1.94 oz)
Exposures needed for measurement	One
Standard measurement parameters	kVp, dose, dose rate, HVL, exposure time, pulses, pulse rate and dose/pulse
Waveforms	Simultaneous kV and dose rate
<b>kV</b>	
Range	18 – 49 kV
Uncertainty	$\pm 1.5\%$ or 0.5 kV
<b>Dose</b>	
Range	1 nGy – 9999 Gy
Uncertainty	$\pm 5\%$ or 10 nGy
<b>Dose Rate</b>	
Range	2 nGy/s - 1 Gy/s
Uncertainty	$\pm 5\%$ or 20 nGy/s
Trigg level	50 nGy/s
<b>HVL</b>	
Range	0.2 - 4.0 mm Al
Uncertainty	$\pm 5\%$ or 0.02 mm Al
Min Dose Rate	0.1 $\mu$ Gy/s

# Mako Probes & Modules



## Mako Dental Probe

The immaculate new Mako Dental Probe offers the ultimate test tool in Dental X-ray applications, with best-in-class accuracy ( $\pm 1.5\%$  kV) and advanced detector design. The probe is perfectly designed for CBCT and intraoral applications, in addition to panoramic dental measurements, featuring a 0.9 mm detector for full irradiation in narrow-beam X-ray fields.

**Art. No: 9765013-00**

### Specifications with Mako

Size	122.5 x 28 x 14.5 mm (4.82" x 1.1" x 0.57")
Weight	55 g (1.94 oz)
Exposures needed for measurement	One
Standard measurement parameters	kVp, dose, dose rate, HVL, TF, exposure time, pulses, pulse rate and dose/pulse
Waveforms	Simultaneous kV and dose rate
<b>kV</b>	
Range	35 – 125 kV
Uncertainty	$\pm 1.5\%$
<b>Dose</b>	
Range	1 nGy – 9999 Gy
Uncertainty	$\pm 5\%$ or 5 nGy
<b>Dose Rate</b>	
Range	1 nGy/s – 500 mGy/s
Uncertainty	$\pm 5\%$ or 10 nGy/s
Trigg level	25 nGy/s
<b>HVL</b>	
Range	1-14 mm Al
Uncertainty	$\pm 10\%$
Min Dose Rate	0.1 $\mu$ Gy/s



## Mako Ion Chamber Module

The Mako Ion Chamber Module connects RTI Ion Chambers (such as CT Ion Chambers, DAP Chamber and Ion Chamber Magna 1cc) to the Mako System. Automatic temperature and pressure compensation is provided, meaning no fuss with settings to complete the measurement.

### General specifications:

Dimensions: 80 x 27x 16.5 mm (3.15" x 1.06" x 0.65")

Weight: 32 g (1.3 oz)

**Art. No: 9765021-00**

## Mako mAs Module

The Module comes with the invasive Mako mAs Cable as standard, as well as supporting non-invasive mAs capabilities (via MAS-2 clamp) and Test Point Cables. Connected to the X-ray generator, it delivers the mA and mAs together with the corresponding waveform. The built-in digital rectifier handles single phase units with no need to worry about polarity. Range: 0.1 mA - 2.0 A ( $\pm 1\%$  or 0.01 mA)

### General specifications:

Dimensions: 68 x 27 x 14.5 mm (2.68" x 1.06" x 0.57")

Weight: 16 g (0.6 oz)

**Art. No: 9765023-00**

## Mako Legacy Module

The Mako Legacy Module connects the current range of Piranha and Cobia probes. It allows seamless use of your current probes. The RTI CT Dose Profiler and RTI Light Probe connect to the Mako System via the Mako Legacy Module.

### General specifications:

Dimensions: 68 x 27 x 14.5 mm (2.68" x 1.06" x 0.57")

Weight: 20 g (0.7 oz)

**Art. No: 9765022-00**

# Probes

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## RTI Dose Probe

The RTI Dose Probe is an external dose probe, designed for low dose rate measurements, such as input dose rate to image intensifiers.

The probe is small and has a fast response which makes it ideal for pulsed fluoroscopy. It can detect the individual pulses, determine pulse rate, and show waveforms at dose rate.

The small size gives the probe minimal footprint to avoid/minimize interference with AEC (Automatic Exposure Control). It can even fit into the table bucky. Being a solid-state detector, no corrections for pressure or temperature are needed.

With the extraordinary sensitivity of the Dose Probe, it is even suitable for scatter and leakage measurements.

### General specifications:

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Dimensions: 20 x 45 x 7.4 mm (0.79" x 1.8" x 0.29")

Weight: 85 g (3 oz)

Cable length: 2.0 m (6.6 ft)

Backscatter protected: Yes

### Specifications with Piranha:

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Dose: 100 pGy - 1.5 kGy. 12 nR - 170 kR ( $\pm 5\%$ )

Dose rate: 4 nGy/s - 150 mGy/s ( $\pm 5\%$  or  $\pm 10$  nGy/s)

0.46  $\mu$ R/s - 16 R/s ( $\pm 5\%$  or  $\pm 1$   $\mu$ R/s)

Time: 0.1 ms - 34000 s ( $\pm 1\%$  or  $\pm 0.5$  ms)

Pulses: 1 - 65535 pulses ( $\pm 1$  pulse)

Dose per pulse: 1 nGy/pulse - 0.3 Gy/pulse

Pulse rate/frequency: 0.5 - 100 Hz

Pulse width: 4 ms - 2000 s

### Specifications with Cobia Flex, Sense & Dental:

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Dose: 6 nGy - 2 kGy. 660 nR - 250 kR ( $\pm 5\%$ )

Dose rate: 220 nGy/s - 220 mGy/s. 1.5 mR/min - 1.5 kR/min ( $\pm 5\%$ )

Time: 0.33 ms - 9999 s

Pulses: 3 - 9999 pulses

Dose per pulse: 1 nGy/pulse - 3 kGy/pulse. 114 nR/pulse - 342 kR/pulse

Pulse rate/frequency: 1/6 - 260 Hz

### Specifications with Mako Legacy Module:

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Dose: 100 pGy - 1.5 kGy. 12 nR - 170 kR ( $\pm 5\%$ )

Dose rate: 4 nGy/s - 150 mGy/s ( $\pm 5\%$  or  $\pm 10$  nGy/s) 0.46  $\mu$ R/s - 16 R/s ( $\pm 5\%$  or  $\pm 1$   $\mu$ R/s)

Time: 0.1 ms - 34000 s ( $\pm 1\%$  or  $\pm 0.5$  ms)

Pulses: 1 - 65535 pulses ( $\pm 1$  pulse)

Dose per pulse: 1 nGy/pulse - 0.3 Gy/pulse

Pulse rate/frequency: 0.5 - 100 Hz

**Art. No: 9730003-00**

**Art. No: 9730003-00**

# Probes

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## RTI T20 Dose Probe

A slimmed dose probe intended for R/F measurements when it is crucial not to affect the system output (due to AEC) or disturb the X-ray beam.

It can be placed anywhere in the X-ray field and is developed for measurements of patient entrance dose (skin dose) and maximum dose rate.

The T20 has a flat energy response with no need for correction factors. It has five times higher sensitivity than a typical ion chamber.

### General specifications:

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Dimensions: 35 × 320 × 6.0 mm (metal 23,5 × 5,6 mm)  
Weight approx.: 75 g (2.6 oz)  
Cable length: 2.0 m (6.6 ft)  
Temperature and air pressure: Insensitive, no TP correction is necessary  
Backscatter protection: Yes  
Angular dependence: Less than ±2 % for incident angles less than 10 degrees.  
Energy dependence: +1,6 to -0,4 % (radiation quality R1)  
Typical sensitivity: 8 µC/Gy  
Connector: Piranha external connector

### Specifications with Piranha:

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Dose: 0.7 nGy - 10 kGy (0.08 µR - 1 MR)  
Dose rate: 27 nGy/s - 500 mGy/s (3 µR/s - 57 R/s)  
Uncertainty: ±5 % (RQR, 50 - 150 kV)  
Time: 0.1 ms - 34000 s  
Pulses: 1 - 65535 pulses  
Pulse rate/frequency: 0.1 - 100 Hz  
Trig modes: Auto, Timed, and Free Run

### Specifications with Cobia Flex, Sense & Dental:

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Dose: 40 nGy - 15 kGy (4.6 µR - 1700 kR)  
Dose rate: 1.5 µGy/s - 1.5 Gy/s (170 µR/s - 170 R/s)  
Uncertainty: ±5 % (RQR, 50 - 150 kV)  
Time: 0.33 ms - 9999 s  
Pulses: 3 - 9999 pulses  
Pulse rate/frequency: 1/6 - 260 Hz  
Trig modes: Auto (Timed trig mode available with Ocean software)

**Art. No: 9730015-00**



## DAP Chamber

The DAP Chamber is the perfect tool for field calibration of orthodontic and radiographic X-ray equipment. You can measure with just one click - fast, easy, and accurate.

*Chamber Adapter version 1.1 or higher is needed to use the DAP chamber together with Piranha or Cobia  
Mako Ion Chamber Module is needed to use the DAP chamber together with Mako.*

### Specifications:

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Cable length: 2.0 m (6.6 ft)  
Dose rate range: 6 mGy<sup>cm</sup>²/s - 1800 mGy<sup>cm</sup>²  
Dose range: 0.6 mGy<sup>cm</sup>² - 1 kGy<sup>cm</sup>²  
Uncertainty: ±6 % at reference conditions RQR5, ±10 % RQR2 to RQR10  
Valid for: Exp time >100 ms  
Quality equivalent filtration (70 kV): 0.2 mm Al

### DAP Chamber 86x86 mm:

**Art. No: 9705070-00**

**Art. No: 9705070-01 - for Mako**

### DAP Chamber 147x147 mm:

**Art. No: 9705060-00**

**Art. No: 9705060-02 - for Mako**

### Universal Rails for DAP Chamber 9705060-00

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Rails to easily fit the DAP Chamber 147x147 to most X-ray collimators.

**Art. No: 9705060-01**

# Probes

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## RTI MAS-1

The MAS-1 Probe is an invasive probe for the measurement of mA and mAs. Direct readings of mA and mAs, as well as waveform, are obtained. The simple way of invasive measurements.

The MAS-1 Probe connects to the mAs socket in the X-ray generator and to the multimeter.

It can be used to measure tube current for both fluoroscopic and radiographic exposures.

### General specifications:

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Dimensions: 60×35×72 mm (2.4"× 1.4" × 2.8")

Weight: 125 g (4.4 oz)

Battery type: Li.Ion, 1100 mAh

Cable length from MAS-1 to Piranha/Cobia: 4.0 m (13.1 ft)

Cable length from generator to MAS-1: 0.5 m (1.6 ft)

### Specifications with Piranha:

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#### Tube charge:

Range: 0.001 mAs – ∞

Uncertainty: ±1 %

#### Tube current:

Range: 0.1 – 3000 mA

Uncertainty: ±1% or ±10 μA

### Specifications with Cobia Flex, Sense & Dental:

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#### Tube charge:

Range: 0.001 mAs – 999 As

Uncertainty: ±1 %

#### Tube current:

Range: 0.1 – 3000 mA

Uncertainty: ±1 % or ±10 μA

Art. No: 9730005-00



## RTI MAS-2

The MAS-2 Probe is a clamp-on probe for non-invasive measurement of mA and mAs.

Direct readings of mA and mAs, as well as waveform, are obtained. No connection inside the X-ray generator is needed. The simple and safe way of non-invasive measurements.

The RTI MAS-2 probe is simply clamped on to the high voltage cable and then ready for measurements.

### General Specifications:

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Dimensions: 183 x 61 x 36 mm

Weight: < 0,2 kg ( 7 oz)

Cable length: 3.0 m (9.8 ft)

Battery type: 2 alkaline IEC R6 (size AA) 1,5 V batteries

### Specifications with Piranha:

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#### Tube charge:

Range: 0.1 mAs – ∞

Uncertainty: ±5 %

#### Tube current:

Range: 10 – 4000 mA

Uncertainty: ±5 % or ±2 mA

### Specifications with Cobia Flex, Sense & Dental:

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#### Tube charge:

Range: 0.1 mAs – ∞

Uncertainty: ±5 %

#### Tube current:

Range: 10 – 4000 mA

Uncertainty: ±5 % or ±2 mA

### Specifications with Mako mAs Module:

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#### Tube charge:

Range: 0.1-9999 mAs

Uncertainty: ±5%

#### Tube current:

Range: 10 - 4000 mA

Uncertainty: ±5% or 2 mA

Art. No: 9730006-00

Art. No: 9730006-02 – for Mako

# Probes

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## RTI CT Dose Profiler

The RTI CT Dose Profiler has taken the CT quality assurance to the next level.

Because of its revolutionary design, it has transformed the CTDI measurement from being inaccurate due to underestimation of the dose for wide beams to be more exact. It also has the ability to further analyze the result – all in one shot.

The rapid advancements in CT technology are placing new demands on methods and equipment used for quality assurance.

The wide beams of modern CT scanners make it difficult to use existing CT ionization chambers to measure the total dose given to the patient.

Using a standard 10 cm CT ion chamber may result in inaccurate measurements due to underestimation of the dose profile for wide beams. The CT Dose Profiler was developed to solve this problem.

The dose is measured in every point of the X-ray beam and the total dose profile is acquired regardless of how wide the beam is. There is no limitation of the beamwidth. This makes it possible to measure without the drawbacks of traditional CT probes.

With the CT Dose Profiler, you can avoid more expensive methods that require both preparations before and read-out after each scan (like TLD and X-ray film). The CT Dose Profiler is also ideal for measuring point dose and dose rate in the CT beam.

The CT Dose Profiler is based on solid-state technology. It is robust, and it fits into existing standard phantoms used for CTDI measurements.

### The following parameters are achieved from a single exposure:

- CTDI(100)
- CTDI(w)
- CTDI(vol)
- Point Dose
- CT dose profile
- DLP
- FWHM (Full width at half maximum of the dose profile)
- Geometric efficiency
- Performance of the AEC

*All parameters presented with high resolution and accuracy.*

### General specifications:

Length: 210 mm  
Diameter: 12.5 mm  
Weight: 50 g  
Sensor width: 250  $\mu$ m  
Cable length: 4.0 m (13.1 ft)

### Specifications with Piranha & Mako Legacy Module:

#### **Dose:**

Range: 1.8 nGy – 22 kGy. 200 nR – 2.5 MR  
Uncertainty:  $\pm 5$  %

#### **Dose Rate:**

Piranha Range: 67 nGy/s – 2.2Gy/s. 7.6  $\mu$ R/s – 260 R/s  
Uncertainty:  $\pm 5$  % or 0.1  $\mu$ Gy/s  
Mako Range: 0.5  $\mu$ Gy/s to 3 Gy/s  
Uncertainty:  $\pm 5$  % or 0.1  $\mu$ Gy/s

### Specifications with Cobia Flex, Sense & Dental:

#### **Dose:**

Range: 80 nGy – 33 kGy. 9  $\mu$ R – 3.8 MR  
Uncertainty:  $\pm 5$  %

#### **Dose Rate:**

Range: 3.3  $\mu$ Gy/s – 3.3 Gy/s. 0.4 mR/s – 380 R/s  
Uncertainty:  $\pm 5$  %

**Art. No: 9730013-00**

# Probes

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## RTI CT Ion Chamber 10 cm

The CT Ion Chamber 10 cm is a cylindrical pencil-shaped ionization chamber for CTDI measurements.

Intended for CTDI and dose length product measurements on CT scanners in phantom or free-in-air.

The 10 cm chamber fits into standard phantoms used for CTDI measurements. It fulfills applicable parts of the IEC 61674 standard for diagnostic dose meters. Thereby it is compatible with IEC 61223-2-6 and 66601-2-44 for applicable CT dosimetry.

*Chamber Adapter is needed to use the CT Ion Chamber together with Piranha or Cobia*

*Mako Ion Chamber Module is needed to use the CT Ion Chamber together with Mako.*

### Specifications:

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Active length: 100 mm

Active volume: 5.3 cm<sup>3</sup>

Diameter: 12 mm, 12.6 incl O-rings

Cable length: 2 m

Typical leakage: ±20 fA

Radiation quality: 70 - 150 kV

Sensitivity: 30 mGycm/nC

Energy dependence: ±1 %

#### Dose rate:

Range: 0.3 mGycm/s to 3 Gycm/s

Uncertainty: ±5 % or ±0.03 mGycm/s

**Art No: 9730025-00**

**Art. No: 9730025-01 – for Mako**



## RTI CT Ion Chamber 30 cm

The CT Ion Chamber 30 cm is a cylindrical pencil-shaped ionization chamber specially developed for free-in-air measurements on wide beam CT scanners.

Intended for CTDI measurement on CT scanners with beam width 4 cm or wider.

*Chamber Adapter is needed to use the CT Ion Chamber together with Piranha or Cobia*

*Mako Ion Chamber Module is needed to use the CT Ion Chamber together with Mako.*

### Specifications:

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Active length: 300 mm

Active volume: 16 cm<sup>3</sup>

Diameter: 12 mm, 12.6 incl O-rings

Cable length: 2 m

Typical leakage: ±20 fA

Radiation quality: 70 - 150 kV

Sensitivity: 30 mGycm/nC

Energy dependence: ±1 %

#### Dose rate:

Range: 0.3 mGycm/s to 3 Gycm/s

Uncertainty: ±5 % or ±0.03 mGycm/s

**Art. No: 9730026-00**

**Art. No: 9730026-01 – for Mako**

# Probes

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## Ion Chamber Magna 1 cc

The Magna 1 cc ionization chamber is designed for mammography dose measurement. It has an excellent energy response and can therefore be used for radiographic applications as well.

Magna's air equivalent construction makes it ideally suited for in air exposure measurements of mean glandular dose. The Ion Chamber Magna 1cc comes in a hard case for the best protection.

*Chamber Adapter is needed to use the Ion Chamber Magna together with Piranha or Cobia  
Mako Ion Chamber Module is needed to use the Ion Chamber Magna together with Mako.*

### Specifications:

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Active volume: 1 cm<sup>3</sup>  
Height: 25.4 mm  
Diameter: 41.3 mm  
Inner plate separation: 8 mm  
Weight: 200 g  
Cable length: 2 m  
Materials: Air equivalent plastic, acrylic  
Entrance window: Kapton conductive film  
Typical leakage: ±5 fA  
Radiation quality: 20 - 150 kV  
Energy dependence: ±2 %  
Typical sensitivity: 20 mGy/nC

### Dose rate:

Range: 0.25 mGy/s - 2.5 Gy/s  
Uncertainty: ±5 % or ±0.025 mGy/s

**Art. No: 9706100-00**

**Art. No: 9706100-01 - for Mako**



## RTI Light Probe

The Light Probe is designed to comply with the needs of QA in modern X-ray departments.

For calibration & brightness measurements (luminance) on monitors and film viewing boxes as well as ambient light (illuminance) measurements in the viewing room.

The Light Probe has the same spectral response as the human eye. That makes it reliable for all different types of measurements, independent of the light source.

The spectral response complies with the CIE V(λ) curve. The Light Probe comes with a cable length of: 2.0 m (6.6 ft).

### Specifications with Piranha & Mako Legacy Module:

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#### Luminance:

Range: 0.04 cd/m<sup>2</sup> - 128 000 cd/m<sup>2</sup>  
Uncertainty: ±5 % or ±0.008 cd/m<sup>2</sup>

#### Illuminance:

Range: 0.014 lx - 48 000 lx  
Uncertainty: ±5 % or ±0.003 lx

### Specifications with Cobia Flex, Sense & Dental:

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#### Luminance:

Range: 0.2 - 180 000 cd/m<sup>2</sup>  
Uncertainty: ±5 % or ±0.04 cd/m<sup>2</sup>

#### Illuminance:

Range: 0.08 - 70 000 lx  
Uncertainty: ±5 % or ±0.02 lx

**Art. No: 9730007-00**

## Adapter

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### RTI Chamber Adapter

External module for connecting ion and DAP chambers of various brands to Piranha and Cobia. Supports ion chambers with LEMO triaxial connectors. *Adapter for Piranha and Cobia (not Mako).*

#### Specifications:

Dimensions: 120 x 60 x 35 mm

Weight: 240 g

Power source: Rechargeable battery

Battery life: 10 hours

**Art. No: 9730016-00**

## Display unit

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### 10" Tablet PC

10" Tablet PC display for wireless (Bluetooth) or USB communication with Piranha and Cobia.

Comes with detachable keyboard, Windows 10, installed Ocean Next™ software, charger, and all necessary items to make it a user-friendly & versatile remote display to your RTI instrument.

**Art. No: 9743007-00**

# Cases

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## Piranha Outdoor case

A waterproof case, made with a rugged, high impact polypropylene exterior. Inside, it has many of the same design features as the Piranha Alu Case. The Piranha, and any desired accessories, are stored in two convenient and compact layers.

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### Specifications:

Dimensions: 47x36x19 cm.

**Art. No: 9742005-00**



## Soft Shell Case

A perfect solution for storing your Cobia or Piranha meter. Along with power supply, tablet and a couple of probes, your QA solution fits perfectly into this case.

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### Specifications:

Dimensions: 32x22x9 cm.

**Art. No: 9742008-00**



## Piranha ALU Case

This lightweight, aluminium case is not only attractive, but also just “the right size” to provide space for the Piranha and all its accessories included in the popular Piranha Premium Kits.

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### Specifications:

Dimensions: 42x31x15 cm.

**Art. N: 9742006-04**



## Accessory Case

Makes your product safer and more practical when you work in the field.

The case is made of durable material to keep your product in a perfect environment during transportation.

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### Specifications:

Dimensions: 38x27x8 cm.

**Art. No: 9705003-00**

# Cases

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## Mako Outdoor Case

The Mako Outdoor Case is a very robust hard case for transportation and storage of the Mako with accessories. Included in all Mako Premium Kits.

### Specifications:

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Dimensions: 47x36.5x19 cm.

**Art. No: 9742650-00**



## Mako Dental Outdoor Case

The Mako Dental Outdoor Case is a very robust hard case for transportation and storage of the Mako Dental with accessories.

### Specifications:

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Dimensions: 47x36.5x19 cm.

**Art. No: 9742652-00**



## Mako Standard Shell Case

A smooth, easy, and safe solution for transportation & storage of your Mako system.

Perfect for Mako Base Unit along with power supply, Tablet PC, and a couple of probes. Included in all Mako R/F, Mammo or R/F + Mammo systems

### Specifications:

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Dimensions: 36 x 32 x 16 cm.

**Art. No: 9742651-00**



## Mako Dental Shell Case

A smooth, easy, and safe solution for transportation & storage of your Mako Dental system.

Perfect for your instrument along with power supply, Tablet PC, and a couple of probes

### Specifications:

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Dimensions: 36 x 32 x 16 cm.

**Art. No: 9742653-00**

## Holders/stands

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### Mako Panoramic Holder

Holder for Mako Dental Probe.

**Art. No: 9765031-00**



### Cobia Vertical Holder

The Cobia Vertical Holder is designed for attaching the Cobia to vertical surfaces, like a wall bucky, or Cone Beam X-ray units. It comes with an adjustable strap – with suction cup – for safe mounting.

**Art. No: 9744011-00**



### Mako Holder and Stand

Holder and Stand for Mako R/F, Mammo and Dental Probes. The standard kit comes with compatible holders for RTI Dose Probe and RTI CT Ion Chamber.

**Art. No: 9765030-00**



### Piranha Panoramic Holder/Vertical Holder v.4

This holder is designed for attaching the Piranha to dental panoramic equipment or vertical mounting. It can be mounted with an adjustable strap – with suction cup – or magnets.

**Art. No: 9744007-00**



### Piranha Mammo Holder

Piranha Mammo Holder is developed for easy positioning of the Piranha in the reference point for almost every Mammo unit. The holder is specifically designed for Hologic Selenia and Fuji Amulet.

**Art. No: 9744009-00**

# Holders/stands

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## HVL Stand 100×100

Adjustable stand for easier positioning of the HVL filter, RTI Dose Probe, Piranha device, Barracuda MPD, and R100. Filter holder for 100x100 mm filter size included. HVL filter kits sold separately.

**Art. No: 9720911-00**



## HVL Stand 33×33

Adjustable stand for easier positioning of the HVL filter, RTI Dose Probe, Piranha device, Barracuda MPD, and R100. Filter holder for 33x33 mm filter size included. HVL filter kits sold separately.

**Art. No: 9720910-00**



## Filter Holder 100x100

Filter holder for 100x100 mm filter size. Upgrades 9720910-00 HVL Stand 33x33, so that 100x100 mm Al filters can be used as well. HVL filter kits sold separately.

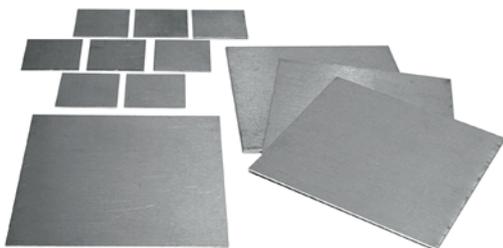
**Art. No: 9720911-01**



## Filter Holder 33x33

Filter holder for 33x33 mm filter size. Upgrades 9720911-00 HVL Stand 100x100, so that 33x33 mm Al filters can be used as well. HVL filter kits sold separately.

**Art. No: 9720910-03**



## HVL Filter Kit – 33x33 mm & 100x100 mm

Aluminum filter sets for traditional HVL measurement on R/F, CT, Dental, and Mammography. (99.5%)

**33x33 mm Art. No: 9703045-00**

**100x100 mm Art. No: 9703044-00**



## GE Piranha Holder for Pristina

The GE Piranha Holder is developed for use with the GE Mammo IQST Jig and the Senographe Pristina from GE.

The holder offers easy positioning and ensures that the Piranha is correctly positioned for every X-ray QA measurement.

**Art. No: 9744006-00**

# Holders/stands

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## GE Piranha Holder for Essential, DS, 2000D, DMR

The GE Piranha Holder is developed for use with the GE Mammo IQST Jig and the Senographe Essential, DS, and 2000D from GE.

The holder offers easy positioning and ensures that the Piranha is correctly positioned for every X-ray QA measurement.

**Art. No: 9744013-00**



## GE Piranha Holder and Stand D8

This stand includes a base plate that can be used as a holder for the Piranha main unit. This allows accurate positioning of the Piranha for special applications.

**Art. No: 9744004-00**



## GE Dose Probe Holder

The Dose Probe Holder is designed for accurate positioning of the RTI Dose Probe, fitting on the jigs for GE RAD & R/F systems.

The Dose Probe Holder can be used together with 9744004-00 Piranha Holder & Stand D8.

**Art. No: 9744002-00**



## Philips Dose Probe Holder

For positioning of RTI Dose Probe on Philips EDL stand.

**Art. No: 9744008-00**



## GE Vascular Holder

The GE Vascular Holder is designed for accurate positioning of the RTI Dose Probe, fitting on the jigs for GE Vascular system.

**Art. No: 9744005-00**



## Philips Piranha Holder

For positioning of Piranha on Philips EDL stand.

**Art. No: 9744012-00**

## Holders/stands



### RTI Dose Probe Scatter Holder

Stand to fixate RTI Dose Probe in defined positions for scatter measurements (on DEXA and other systems).

**Art. No: 9720912-00**



### RTI Dose Probe Flexi Stand

The Flexi Stand is developed for use with RTI Dose Probe, for vertical or horizontal exposures. Good for scatter measurements. Normally placed on the patient table.

**Art. No: 9744010-00**



### Dose Probe Suction Cup Holder

For accurate positioning of the RTI Dose Probe in any position from vertical to upside down.

**Art. No: 9744014-00**

## Phantoms



### RTI CTDI Phantom Set – Two-Part Kit

Consists of two nested PMMA cylinders: the adult head (16 cm diameter); and the adult body (32 cm diameter). Both the CT Dose Profiler and the RTI CT Ion Chamber fit in the phantom.

Comes in a hard case with built-in trolley.

**Art. No: 9705125-00**



### RTI CTDI Phantom Set – Three-Part Kit

Consists of three nested PMMA cylinders: the pediatric head (10 cm diameter); the adult head (16 cm diameter); and the adult body (32 cm diameter).

Both the CT Dose Profiler and the RTI CT Ion Chamber fit in the phantom.

Comes in a hard case with built-in trolley.

**Art. No: 9705130-00**

# Cables

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## BNT Adapter Cable

Converts from bayonet triaxial connector to LEMO triaxial connector.

To be used between Ion Chamber and Chamber Adapter.

**Art. No: 9706015-00**



## Cobia mAs 3,5 mm extension cable, 5 meters

A five-meter extension cable to extend the possible distance between your Cobia Flex and the mAs socket of the X-ray generator.

**Art. No: 9741006-00**



## TNT Adapter Cable

Converts from thread triaxial connector to LEMO triaxle connector.

To be used between Ion Chamber and Chamber Adapter.

**Art. No:9706016-00**



## GE mA test point cable

The GE mA Test Point Cable provides an invasive way to measure mA and mAs on GE's X-ray equipment (AMX4, Elite, Optima Mobile, Jedi-generators), via mA/V-test points in the generator.

**Art. No: 9730096-01**



## Lemo Extension Cable Ext-1

An 8 m high flexible extension cable with LEMO connectors to extend the possible distance between your instrument and your ion chamber.

To be used between Ion Chamber and Chamber Adapter.

**Art. No: 9703030-00**



## RTI mA test point cable

For special mA accuracy tests for the AMX-4, Optima, Jedi, OEC Elite, Fluoroscanner, and more. No need to use an oscilloscope for setting up, configuring, triggering properly, calculating proper values, etc.

Connect the leads to test points and use them with the Piranha meter and Ocean Next™ software.

**Art. No: 9730097-00**

# Other

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## RTI Slit Camera

The RTI Slit Camera is used to assure that the X-ray tube focal spot size is within acceptable limits.

The Slit Camera can be rotated 90 degrees in its holder. That simplifies the measurement of length and width measurements of the focal spot since the slit only has to be aligned once.

It comes with a stand with an adjustable rod. The optional tilting device enables measurements where the reference position is not orthogonal to the image plane, which is normal in mammography. For use with any image receptor.

### Specifications:

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Supporting standards: IEC 60336

Tube focal spot types: Radiographic, CT, Mammographic, & Dental

kV range: 18 – 150 kV

Enlargement factor E:  $0.8 - 5$  ( $E=n/m$ ,  $n$  = slit to detector distance,  $m$  = slit to focal spot distance)

Measurement range: 0.1 – 5 mm

Slit holder size: 97 x 34 x 6 mm

Slit dimensions: 10  $\mu$ m (as defined by IEC 60336)

Slit material: Tungsten (W, 99.9 %)

**Art. No: 9707030-00**



## Visi-X

Optimized for check/documentation of light field/X-ray field alignment.

Simply darken the X-ray room and place your Visi-X under the X-ray tube.

Adjust the light field and make your exposure. The radiation field will immediately be visualized by the afterglow of the special phosphor compound. It can also be used for checking the centering of the bucky tray. Only a very low dose is needed for the Visi-X to light up! wTransport case included.

### Specifications:

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Dimensions: 320 x 276 x 11 mm (without daylight filter)

Equivalent cassette size: 24 x 30 cm

Weight: 1.4 kg

Emission color: Green

Operating temperature: 15 - 45 °C

Field positioning Uncertainty:  $< \pm 0.5$  mm

Centering Uncertainty:  $< \pm 0.5$  mm

### Scale range:

Circular fields: 5-6 cm diameter

Square fields: 5 x 5, 10 x 10, 15 x 15 and 20 x 20 cm

Scale Uncertainty:  $\pm 0.1$  mm

Recommended output: 130  $\mu$ Gy/mAs at 100 kVp and 75 cm S.I.D.

Usable energy range: 15 - 200 keV

**Art. No: 9705001-00**

# Other

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## Nova Ruler Sets

The Nova is dedicated for check/documentation of light field/X-ray field alignment.

Just darken the X-ray room and place your Nova rulers under the X-ray tube.

Adjust the light field and make your exposure.

The radiation field will immediately be visualized on the Nova rulers as long as the radiation is present.

Only a very low dose is needed for the Nova rulers to light up!

Works on Radiography and Fluoroscopy as well as Mammography and Dental applications. Can also be used on circular collimation.

The ruler set consists of fluorescent rulers with movable, metal markers.

### Nova Rad includes four rulers.

Four sides of fields up to 45x45 cm (18"x18") can be measured in one exposure.

**Art. No: 9751001-04**

### Nova Rad Lite includes two rulers.

Two sides of fields up to 45x45 cm (18"x18") can be measured in one exposure.

**Art. No: 9751001-05**



## RTI LoniMover™

The RTI LoniMover is the perfect tool to help you with accurate results in CT dosimetry QA and R&D. For conventional CT as well as Cone Beam CT. For both Pencil Ion Chamber and CT Dose Profiler.

This is, without a doubt, the easiest solution to measure CTDI for Wide Beam and Cone Beam CT according to the IEC 60601-2-44 Ed. 3:A1 standard.

Remember, the LoniMover™ works well with any Pencil Ion Chamber of any brand.

Transport case included.

**Art. No: 9730030-00**

## A reliable and dependable service, each and every time.

Due to the high reliability of RTI products, we recommend a two-year calibration cycle.

To make it convenient for you, we offer to keep track of when your solution needs to be sent in for calibration.

We will send you a reminder two months before your calibration is due, giving you time to plan and schedule your work.



**New Product – Book a demo now!**

# A meter and a milestone.

Unlock time, efficiency, and cost savings by harnessing the power of a single tool across the entire range of X-ray systems and applications. Integrate Mako into Radiography, Fluoroscopy, CT, Dental and Mammography X-ray QA workflows, ensuring no detail goes unchecked. Experience the unrivaled accuracy in measuring kVp, Time, HVL, Total Filtration, Dose, Dose rate, and revel in the captivating presentation of Waveform data.

Mako is a platform-based design, ensuring a future-proof solution that will evolve through continuous innovation and seamless updates.



Read more

**Efficiency  
Accuracy  
Versatility**

## Enjoy a workflow of excellence.

Mako is the epitome of a super kit. A pioneering solution to revolutionize your way of work.



# c/o RTI

What we do matters. To patients. To professionals. To us.

It is more than algorithms, technology and design.

It is about setting the standard for quality assurance  
of X-ray imaging.



INDEPENDENT X-RAY  
QUALITY ASSURANCE