A LabLogic Group Company

Radiology Quality Assurance

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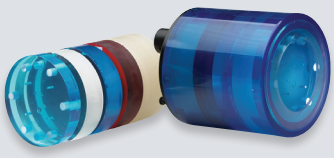
southern scientific
EXPERIENCE & EXPERTISE

Contents

X-ray Meters / External Probes / Accessories / Software

Phantoms / Test Tools



Radiation Protection

Southern Scientific are a manufacturer and supplier of radiation detection equipment with over 30 years experience and expertise.

We provide solutions across various industries including Medical, Veterinary, Nuclear, Industrial, Defence, Security and CBRNe.

The LabLogic Group

Southern Scientific are part of the LabLogic Group including:

LabLogic – A manufacturer and supplier of instruments and software to the Life Science, Nuclear Medicine / PET and Radiation Safety sectors.

Bartec – Specialises in the supply, delivery, installation and support of Nuclear Medicine and Molecular Imaging equipment and accessories.

Knight Imaging – A manufacturer and supplier of medical furniture.

Our Values

A Customer for Life – We aim to create long term successful relationships with our customers, helping them achieve their goals.

Service – It is of utmost importance that we provide the best possible service to our customers. We believe this philosophy is the main reason behind our long term success.

Quality – We aim for high quality throughout our business. From the internal standards, to the products and service we provide our customers.

Innovation – We are constantly developing our products and expanding our product portfolio. We aim to exceed the needs of our customers and the marketplace.

RTI are dedicated to bringing beneficial and efficient solutions for safety and quality assurance to the X-ray community.

Based on the customer's needs RTI provide the market with a range of systems used in radiology QA. RTI are a responsive and helpful partner for users, setting up and providing solutions to problems they may encounter.

RTI and Southern Scientific will work with users to achieve an open, vibrant and inspirational environment, where ideas and energy can grow – aiming to minimise risks and optimise processes in radiology QA.

The key to making X-ray Quality Assurance effective

To RTI, it's all about supporting the work process and making it more efficient. Customers want to do their work faster – cutting administration time is valuable – yet they need to make sure they do the job right. With RTI wireless solutions the user is up and running instantly.

- It doesn't matter if you perform very basic checks or are a scientist – RTI have something for everyone.
- Their goal is to make tools that simplify tasks and help you out in your daily work.
- RTI products are used by major manufacturers, hospitals and authorities world-wide.

Piranha

A self contained, multi-functional meter for all X-ray based QA applications, the black Piranha provides easy and fast X-ray quality control.

Features

- All-in-one multi-function X-ray meter.
- One-shot HVL for Mammography, Radiography, CT, and Dental.
- Solid-state detectors, no need to compensate for temperature and pressure.
- Can measure on scanning beams as well as tomosynthesis.
- Optimised for X-ray equipment from a large number of manufacturers.
- Built-in energy compensation.
- Can be used together with ion chambers.
- Wide-range detection of total filtration.
- 100 metres Bluetooth range.
- Unique detector design to minimise position and rotation dependence.
- Automatic recognition of external probes.
- Small, compact, robust and easy to place.
- Backscatter protected.
- Long-lasting rechargeable battery.
- Lead-free.
- Free firmware upgrades via Internet or CD.
- Up to 10-year warranty.
- 2-year Calibration Cycle.

Ocean Software

Piranha includes free Ocean Connect 2014 software with the following features:

- Bluetooth or cable.
- Tablet or PC.
- Free updates from RTI.
- Licence held within the Piranha and can be downloaded onto multiple devices.

Sensitive, accurate and reproducible

Capable of measuring on low-output mini C-Arms and Mammography, correcting for any additional filtration.

Auto compensation for temperature and pressure.

Piranha includes a unique position check detector that can verify the detector area is fully irradiated.

Probes

All Piranha packages come with a dose probe as standard. Additionally, a variety of external probes are available including: ionisation chambers, chamber adapter, a unique CT Dose profiler, light detector and mAs probes.

Specifications

Weight	Approx. 405 g
Size	133 x 75 x 26 mm
Power Source	Rechargeable batteries, external power supply
Battery Life	Approx. 15 hours
Interface Type	Built-in Bluetooth and USB
Display Unit	PC or RTI handheld display/Tablet PC
Min. Exp. Time	0.1 ms

Choose one that suits you

Piranha Model	657	557	455	355	255
Tablet Compatible	●	●	●	●	●
Ocean Compatible	●	●	●	●	●
Waveform	●	●	●	●	●
Dose and Dose Rate	●	●	●	●	●
Quick HVL	●	●	●	●	●
Mammography	●			●	
Rad and Fluoro	●	●			
Dental	●	●			●
CT	●	●	●		
KVP and Time	●	●	●	●	●
HVL and Total Filtration	●	●	●	●	●
Dose Probe	●	●		○	○
CT Dose Profiler	○	○	●	○	○
MAS-1, MAS-2, MAS-3 Light Probe	○	○	○	○	○
Ion Chamber	○	○	○	○	○

● Standard Function
○ Optional

Waveform

Sampling Rate	4 - 2000 samples/s
Recording Time	1024 ms - 524 s

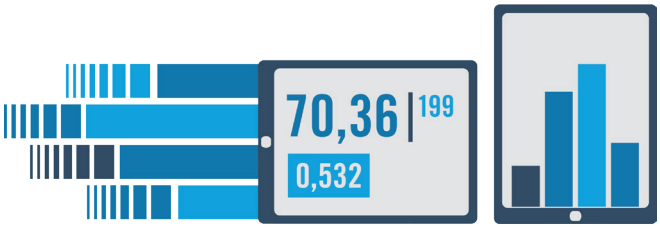
Rad/Flu/Dent/CT

Range	Inaccuracy	Quick HVL
35 - 160 kVp (Rad/Flu)	± 1.5%	Yes
35 - 105 kVp (Dent)	± 1.5%	Yes
45 - 160 kVp (CT)	± 1.5%	
0.1 ms - 2000 s	± 1% or ± 0.5 ms	
1 - 65535 pulses	± pulse	
15 nGy - 1000 Gy	± 5%	
2 µR - 100 kR	± 5%	
15 nGy/s - 450 mGy/s	± 5% or ± 7 nGy/s	
1.7 µR/s - 50 R/s	± 5% or ± 0.8 µR/s	
0.1 mR/min - 3000 R/min	± 5% or ± 0.05 mR/min	
1 - 90 mm Al total filtr.	± 10% or ± 0.3 mm	
1.2 - 14 mm Al HVL	± 10% or ± 0.2 mm	

Mammography

Range	Inaccuracy	Quick HVL	Compr. Paddle
18 - 49 kVp (Mo/30 µm Mo)	1.5% ± 0.7 kV	Yes	Yes
20 - 46 kVp (Mo/25 µm Rh)	2% ± 1 kV	Yes	Yes
18 - 49 kVp (Mo/1.0 mm Al)	2% ± 1 kV	Yes	Yes
25 - 49 kVp (Rh/25 µm Rh)	2% ± 1 kV	Yes	Yes
20 - 49 kVp (W/0.70 mm Al)	1.5% ± 0.7 kV	Yes	Yes
20 - 49 kVp (W/50 µm Rh)	2% ± 1 kV	Yes	Yes
20 - 48 kVp (W/0.50 mm Al)	2% ± 1 kV	Yes	Yes
20 - 40 kVp (W/55 µm Ag)	2% ± 1 kV	Yes	Yes
20 - 40 kVp (W/75 µm Ag)	2% ± 1 kV	Yes	Yes
0.1 ms - 2000 s	± 1% or ± 0.5 ms		
1 - 65535 pulses	± 1 pulse		
25 nGy - 1500 Gy	± 5%		
3 µR - 150 kR	± 5%		
25 nGy/s - 750 mGy/s	± 5% or ± 0.04 µGy/s		
30 µR/s - 86 R/s	± 5% or ± 4 µR/s		
1.8 mR/min - 5100 R/min	± 5% or ± 0.3 mR/min		
0.19 - 0.8 mm Al HVL	± 10%		

Ocean



Ocean is RTI's versatile software for X-ray Quality Assurance. By using Ocean you will speed up your total working process and minimise your time in the X-ray room.

Key Features

- User friendly and simple to set up.
- All previous measurements can be viewed.
- Create checklists.
- Add information as a pop-up window for a specific exposure.
- Quick check mode allows you to instantly see values of your parameters on screen along with their wave forms.
- Use templates as they are or adapt to fulfil exact requirements.
- Embed Excel spreadsheets.

Waveforms

- Immediate display.
- Data can be transferred to Excel.

Fully Customisable Interface

- Edit templates with new columns, rows or analysis.
- Save main templates as 'favourites' and store data for later review.
- Include your own calculations based on measured data.
- Incorporate hints and tips as word documents or pictures.

Reporting Functionality

- Instantly produce fully customisable reports.
- Add own acceptance limits and analysis.
- Click one button for a full report.

Increase Functionality

- Create standardised measurements for entire rooms or specific equipment.
- Share set-ups with other users.
- Send global reports.

Options

- 2 versions available: Connect, Professional.
- Can be purchased pre-loaded onto a intuitive Windows 8 touchscreen tablet PC.
- Licence held within devices so Ocean can be downloaded onto multiple PC's.

Ocean Central

Ocean Central makes it possible to tie all Ocean users together via network and internet. With Ocean Central you can save all measured data in one place and easily distribute templates and 'to do' list function.

Ocean Connect

Ocean Connect uses our new Quick Check mode which helps you to start measuring within seconds.

When using Quick Check, Ocean detects what instrument and what detectors you have connected and adjusts the layout of the screen to assist you the best way possible. All the measured parameters are displayed on one screen, and these results and waveforms can be retained in the database for later review.

You can also export your measurements to MS Excel® in a number of different ways. This gives you the advantage of utilising existing spreadsheets and forms.

If you don't need further processing of the measurements, you can print out a report directly from Ocean. The layout of the report can be easily customised.

Ocean Connect also gives you the opportunity to measure with CT Dose Profiler.

Ocean Professional

Ocean Professional gives you all the features of Ocean Connect plus so much more. Ocean Professional is Quality Assurance for the entire room and organisation. Plan – measure – analyse!

Ocean Professional transforms Ocean into a powerful tool, providing the creation of specified reports, helpful graphs, and detailed analysis of X-ray measurements. It allows you to create your test templates just like you want them. Make checklists for each room or tube. Customise the layout of Ocean and apply a large number of ready-made analyses to your measurements. Mark the most frequently used templates as 'favourites' and they will pop up during start-up. There are a number of different ways to make trend analyses on your measurements and it is easy to see the history of a specific measurement.

You fully control your 'work environment,' while Ocean controls your RTI meter.

Cobia

The Cobia range from RTI offer a simple and smart solution for measuring the output of various X-ray devices.

There are four versions of the Cobia for measuring a range of different radiography and fluoroscopy parameters. Select the model that best suits your needs, and only pay for the parameters you want to measure.

Easy to Use

The Cobia range has been designed to be straightforward and trouble free, simply place beneath the X-ray tube, make an exposure, and rapidly obtain accurate readings. No positional adjustments are required making them extremely easy to use. Large, rotatable and sharp displays allow results to be read clearly and easily from a distance.

Up to 10 Year Warranty

As with all RTI devices the Cobia range are calibrated by an accredited X-ray lab and come with an automatic 2 year manufacturer's warranty when purchased new, with the option of taking out an extended warranty of up to 10 years.

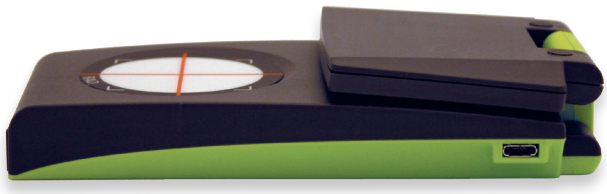
Features

- No positional dependence.
- Large rotatable display.
- Multiple languages.
- Log/history function.
- Measures pulsed radiation.
- Full auto range (kV, TF and Sensitivity).
- Solid-state detectors, no need to compensate for temperature and pressure.
- Long-lasting rechargeable battery.
- 2-year calibration cycle.
- Built-in energy compensation.
- Free firmware upgrades via internet or CD.

Cobia SMART

The Cobia SMART offers the simplest solution for checking that the output from an X-ray tube is correct.

The Cobia SMART can measure a range of different modalities including radiography and fluoroscopy.



Select the model that best suits your measurement needs

	R/F - kV	R/F Dose	R/F - kV and Dose
Time	●	●	●
Pulses	●	●	●
kV	●		●
Dose		●	●
Dose Rate		●	●
HVL			●

Cobia FLEX

The Cobia FLEX offers you the flexibility to connect different external probes and ion chambers, with the option of built-in mAs.

It is just as easy to use as the Cobia Smart, but with more possibilities.

- Connects with external probes and ion chambers.
- Built-in mAs (optional).
- Plug and play.
- Bluetooth communication.
- Connection to Ocean Software.
- Dose rate range: 2.5 µGy/s - 175 mGy/s

Cobia DENTAL

The Cobia DENTAL is a simple-to-use instrument for checking that the output from Dental Intraoral X-ray tube is correct.

Since the Cobia is easy to position and does not require any complicated settings, anyone who works in the dental clinic can quickly and easily perform the routine inspection of the intraoral X-ray equipment.

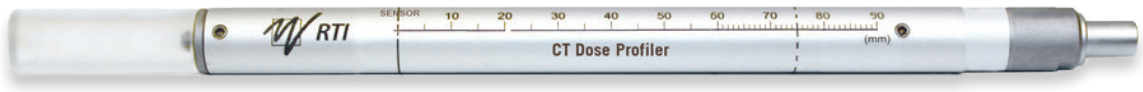
Cobia SENSE

Cobia SENSE is dedicated for use with an external probe and without an internal detector, thereby you only pay for what you need.

Cobia Sense can connect external detectors such as the RTI Dose Probe, Light Probe, CT ion chamber or external mAs probes.

The wide selection of external probes enables a big flexibility in the performance of regular constancy checks for most modalities.

CT Dose Profiler



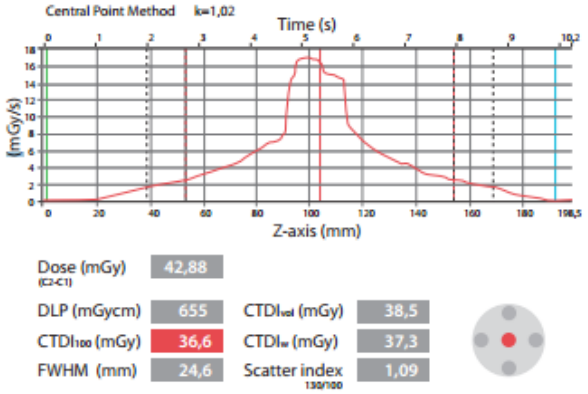
Revolutionary design has transformed the CTDI measurement from being inaccurate due to underestimation of the dose for wide beams to being more exact.

CT scanners are developing at a very rapid pace. The CT Dose Profiler has been designed to meet these challenges as it provides a dose value for an unlimited beam length. The CT Dose Profiler will, in just one shot, give you a complete picture of the dose profile and it can also give you all CTDI parameters, dose length product (DLP), geometric efficiency and full width at half maximum (FWHM).

With the CT Dose Profiler you only have to perform a single helical scan, instead of the usual five axial scans, due to the automatic calculations using a K factor within the ocean software. The dose is measured at every point in the X-ray beam and the total dose profile is acquired regardless of how wide the beam is and without drawbacks of traditional CT ionisation chambers.

The following parameters obtained from a single exposure include:

- $CTDI_{100}$
- $CTDI_{vol}$
- $CTDI_{w}$
- DLP
- Point Dose
- Complete dose profile
- Performance of the AEC
- FWHM
- Scatter Index
- CT Dose Profile
- Geometric efficiency



Specifications

Typical Calibration Factor	0.3 mGy/nC
Material	AI and PMMA
Connector	Triaxial LEMO
Diameter	12.5 mm
Detector Width	0.3 mm
Length	165 x 45 mm
Trig Modes	Timed, After Exposure and Continuous
Max Scanning Time	160 sec.

The Mover

Designed to facilitate dose profile measurement in situations where there is a fixed patient table.

- The Mover is a computer-controlled motorised support for dose profiler measurements in situations when the CT has a fixed patient table.
- Helps the CT Dose Profiler to slide through the CT X-ray field at a constant speed.
- Creates an accurate and easily reproducible way to align the probe in isocentre, providing much faster measurement set-up and a more accurate outcome.

Precision Control

Orientation of the Mover can be performed manually or though software, via RTI's easy-to-use QA programme – Ocean. Used together with RTI's CT Dose Profiler, Ocean can control both the CT Dose Profiler and the Mover, as well as save data and produce reports on all necessary dose profile parameters, including the true thickness of the beam. In this way, RTI provides a complete solution for making dose profile measurements of any length.

The Practical Solution

The Mover is designed to overcome the practical challenges encountered when carrying out dosimetry measurements on modern scanners. Many of the latest CT scanners feature wide beam widths that enable patients to be imaged in just one rotation, precluding the need to move the patient table. In addition, some scanners used for interoperative analysis do not have an integrated patient table.

Dose Probes

Specifically designed for very low dose measurements with image intensifiers.

- Small, solid-state detector minimises interference with the X-ray system AEC and fits into table bucky.
- Can be used for both continuous and pulsed fluoroscopy.
- Small size and fast response makes this probe ideal for pulsed fluoroscopy.
- Lower range makes it possible to use for measurement of scattered and leakage radiation and for mammography.
- No correction for temperature or pressure are needed, and no bias voltage required.
- Can detect individual pulses, determine pulse rate and show waveform even at the highest pulse rates used on modern fluoroscopy systems.

Specifications

Dose	0.1 nGy – 1.5 kGy, 12 nR – 170 kR
Dose rate	1 nGy/s – 76 mGy/s, 0.4 mR/h – 31 kR/h
Dose per pulse	1 nGy/pulse – 3000 Gy/pulse
Accuracy	± 5% or ± 250 pGy/s

T-20 Translucent Detector

T20 is a solid state detector dedicated for measurements on Radiography/Fluoroscopy systems when it is crucial that the detector itself does not have any effect on the system output or disturb the X-ray beam.

Complements the Piranha Dose Probe (PDP), and together they can handle all applications related to installation, service, acceptance testing and QA/QC.

Features

- Solid state detector dedicated to measurements on Radiography and Fluoroscopy systems where it is critical the detector has no effect on the system output or X-ray beam.
- Can be placed anywhere in the X-ray field.
- The detector is separated from the cable attachment by a carbon fibre rod whose extension is sufficiently long for measurements on a digital detector/image intensifier as large as 45 cm^2

- To stabilise the positioning and ensure that the detector surface lies flat against the incident beam, small 'wings' of carbon fibre have been added.
- Developed primarily for measurement of entrance (skin) dose and max dose rate in the Radiographic and Fluoroscopic field.
- Flat energy response in the radiographic range with no need for correction factors.
- T20 connects to the Piranha and has a built-in correction filter which allows the detector to self-compensate for different beam energies.
- T20 gives five times higher sensitivity than ion chambers.

T20 fulfills the IEC directive for dose detectors regarding energy independence, measuring range and angular dependency for RQR50 – 150 kV.

Specifications

Range	0.7 nGy – 10 kGy 0.08 µR – MR 27 nGy/s – 500 mGy/s 3 µR/s – 57 R/s
Accuracy	±5% (RQR 50 –150 kV)
Energy Dependence	Less than ±5% RQR 50 – 150 kv
Detector House Size	26 x 5 mm^2
Length	318 mm (rod 280 mm + detector 26 mm + back mount 12 mm)
Trig Modes	After exposure, Continuous, Timed and Free Run

Ion Chamber Adaptor

Can be added to any Piranha with an electrometer input and dose option.

- Supported by both Ocean and QA Browser.
- Supports most ion chambers with tri-axial cables allowing potential to use existing chambers.

Specifications

Current Range	1.0 pA to 0.1 µA, ± 2% to ± 0.2 pA
Bias Voltage Output	+ 300 V, DC
Connector to Ion Chamber	LEMO tri-axial connector
Power Source	Rechargeable battery, 10 hours
Power Source	120 x 60 x 35 mm

MAS-1 Probe

The MAS-1 is an invasive probe that together with the Piranha provides a direct reading of mA and mAs as well as waveforms.

- Connects to the MAS socket of the X-ray generator and the Piranha.
- Simultaneously measure kV, dose, dose rate, and total filtration.
- When the MAS-1 is connected, the Piranha automatically identifies the probe and makes all necessary adjustments without any need for interaction from the user.
- Can measure tube current for all modalities including fluoroscopic and radiographic exposures.

Specifications

Ranges	0.001 - 9999 mAs, 0.1 mA - 3000 mA
Accuracy	± 1% or ± 0.01 mA

MAS-2 Probe

Connected to the Piranha, the MAS-2 is used for non-invasive measurements, reading mA, mAs, and capturing mA waveform.

- The MAS-2 is clamped easily on the high voltage cable.
- No connection inside the X-ray generator is required.

Specifications

Ranges	0.1 mA - 9999 mA, 10 mA - 4000 mA
Accuracy	± 5% or ± 2 mA

MAS-3 Probe

The MAS-3 is the most sensitive non-invasive mA/mAs probe. It is an ideal choice for occasions where an invasive device cannot be used. It covers the whole mA/mAs range without compromising on accuracy.

The mA waveform is sampled and can be analysed directly via the RTI Ocean software or QA Browser. The probe is ready for measurements by threading the high voltage cable through the probe and simply connecting the MAS-3 to the Piranha or Barracuda.

Specifications

Ranges	0.1 mA - 9999 mA, 10 mA - 4000 mA
Accuracy	± 5% or ± 2 mA

External Probes

Magna 1 cc for Mammo

Designed specifically for mammography dose and dose rate measurements, its excellent energy response means this can also be used for radiographic applications.

- Average response within ± 1% over 20 - 40 kVp.
- Ideally suited for measurements of MGD in air due to air equivalent construction.

Specifications

Dose Rate	25 µGy/s - 250 mGy/s, ± 6 % or ± 2.5 µGy/s

Pencil Ionisation Chamber

Ionisation chamber for use with Cobia Flex, Sense and Piranha.

The probe is intended for CTDI and Dose length product measurements on CT scanners in a phantom or free in air. The chamber has an active volume of 4.9cc, and active length of 100mm. A chamber adaptor is required. The chamber comes with one calibration and calibration must be specified before purchase.

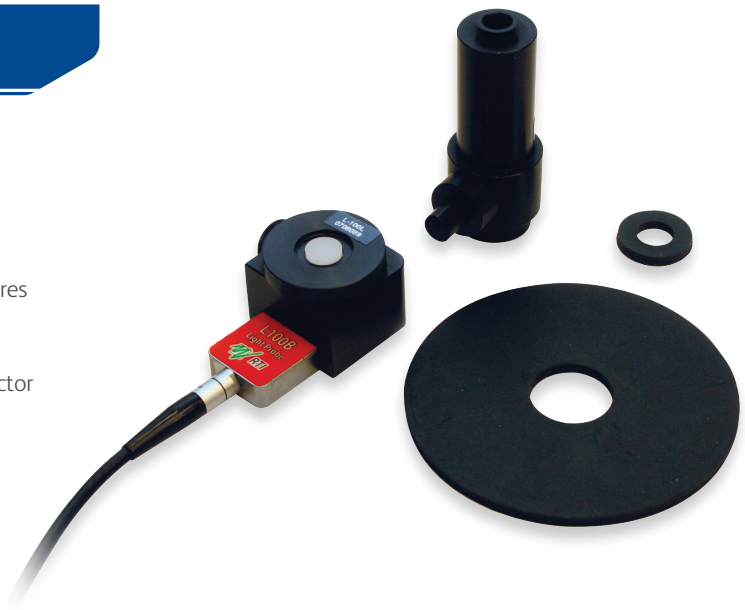
- RQR8, 100kV, 2.5mm Al
- RQR9, 120kV, 2.5mm Al

Light Probes

Measures the brightness on monitors with the same spectral response as the human eye and complies with the CIE curve.

Reliable for all different types of measurements.

- With a monitor and a lux adaptor the detector measures the brightness on monitors and film viewing boxes, and the ambient light in the room.
- The light probe supports the Piranha (automatic detector identification) systems. All information regarding the probe is stored in a memory inside the probe.
- When connected, the Piranha automatically identifies the probe and makes all necessary adjustments without any interaction from the user.



Specifications

	Range	Accuracy
Monitor, Viewing Box	0.03 – 72000 cm/m²	± 5% or ± 6 mcd/m²
Ambient Light	0.01 – 24000 lx	± 5% or ± 0.002 lx

Piranha Premium Kit

The Piranha Premium Kit is a convenient and cost effective way to purchase a complete QA package. Containing some of the most practical RTI tools, the Piranha Premium Kit saves both money and time with efficient pricing and thoughtful packaging.

As all users are not the same, the Premium Kit is available in 6 variations and it can also be customised to suit individual customers needs. Starting with the Piranha multi-meter, each Kit includes a Piranha Dose Probe, Light Probe and CT Profiler or CT Ion Chamber and Chamber Adapter.

Your own choice of mAs-meter (invasive or non-invasive) and how you would like to collect the values – PC, tablet or handheld computer. The Premium Kit includes a robust carrying case with cut-outs for each item included, space for a T-20, and can be upgradable to an Outdoor Case.

Panoramic Holder

The Piranha Panoramic Holder provides easy and quick positioning for measurement on Panoramic systems.

The holder has fluorescent guides, a feature that makes it possible to verify the detector position. Together with the Piranha's 'position check,' they ensure accurate and reproducible results.

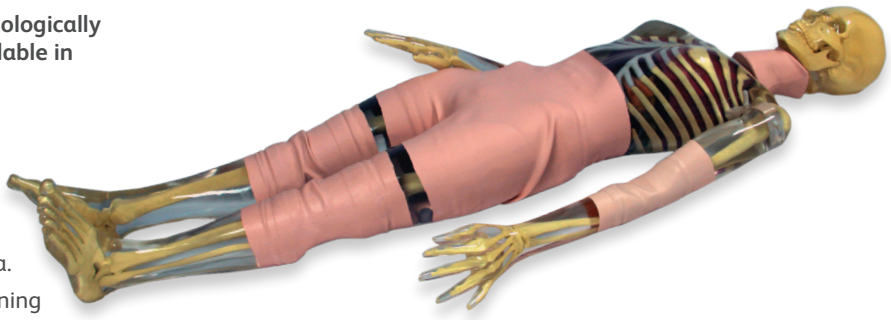
- Fine adjustments easily achieved.
- Wireless set-up.
- Can be fitted using magnets or velcro strap.

Piranha / Cobia Cases

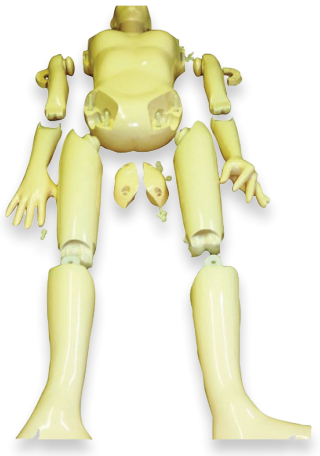
RTI offer a range of premium carry cases including soft shell, lightweight and tough depending on your storage and transportation requirements.

PIXY Anthropomorphic Phantoms

The PIXY phantom is an anatomically and radiologically correct female with life-like flexible joints, available in either opaque or transparent materials.



- Complete with stomach, gall bladder, urinary bladder, kidneys and sigmoid flexure.
- Supplied with permanent storage case.
- Allows positioning for most radiographic techniques and organs accept contrast media.
- Demonstrates anatomy and evaluate positioning and imaging techniques, including kVp, mAs, contrast, optical density, OFD and TFD.
- Radiographs of PIXY give an optical equivalent in density and contrast to human patients.



The new RS-103

The successor to the RS-102, the RS-103 features improved joints and the ability to deconstruct the phantom. Take Apart PIXY's small size and low weight simplifies positioning, as it can be positioned for most views.

Models with organs accept contrast media.

PIXY can be purchased as either opaque or transparent.

Models Available

Order Code	Product
RSD/RS-102	Opaque PIXY Phantom
RSD/RS-102T	Transparent PIXY Phantom
RSD/RS-157	Animal Lungs
RSD/RS-102SP	Custom Fractures and Pathologies*
RSD/RS-102R	Standard PIXY Refurbishment
RSD/RS-103	Pull Apart PIXY Phantom Opaque
RSD/RS-103T	Pull Apart PIXY Phantom Transparent

Catphan® Phantoms

Fast and easy positioning and universal mount makes the Catphan® phantoms ideal for routine quality assurance of any CT scanner.

Comprehensive CT performance measurements

Comprehensive CT performance measurements, internationally recognised for measuring the maximum obtainable performance of axial, spiral, multislice, cone beam and volume CT scanners.

Modular Construction

The Catphan® modular design allows test modules to be interchanged.

As your testing needs change and new modules are developed you can upgrade to test modules that are compatible with your Catphan® system. Additionally, the Catphan® system is ideal for travelling physicists and engineers who conduct comprehensive evaluations of CT scanners at multiple locations as they are easily transportable and no draining is required between uses.

Durable Design

Solid-cast construction eliminates material absorption of water, freezing and leaks associated with water bath phantoms, as well as problems related to varied water sources.

Tests – Summary

- Scan slice geometry (slice width and slice sensitivity profile).
- High resolution (up to 30 line pairs per cm).
- Phantom position verification.
- Patient alignment system check.
- Low contrast sensitivity.
- Comparative subslice and supra-slice low contrast sensitivity.
- Spatial uniformity.
- Scan incrementation.
- Noise (precision) of CT systems.
- Circular symmetry.
- Sensitometry (linearity).
- Pixel (matrix) size.
- Point spread function and modulation transfer function (MTF) for the x, y, and z axes.

Models

Catphan® 500, 600, and 700 are designed for comprehensive evaluation of axial, spiral, multislice, conebeam, and volume CT scanners.

Catphan® 500 Phantom

Complete Catphan including housing and case, equipped with the following test modules:

- Slice width, sensitometry and pixel size.
- 21 line pair high resolution and point source.
- Subslice and supra-slice low contrast.
- Solid image uniformity module.

Catphan® 600 Phantom

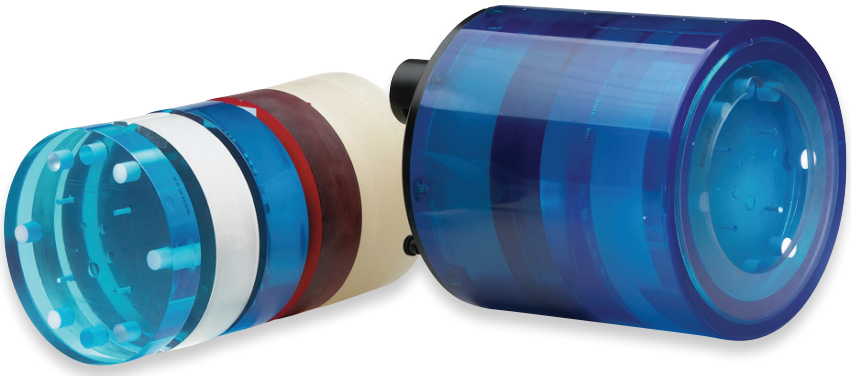
Complete Catphan including housing and case, equipped with the following test modules:

- Slice width, sensitometry and pixel size.
- Bead geometry module.
- 21 line pair high resolution and point source.
- Subslice and supra-slice low contrast.
- Solid image uniformity module.

Catphan® 700 Phantom

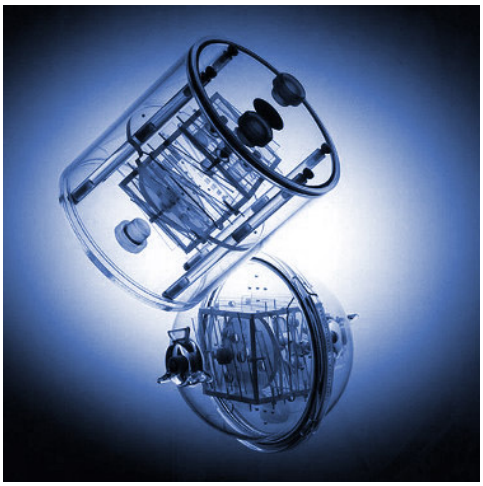
Complete Catphan including housing and case, equipped with the following test modules:

- Geometry sensitometry and point source module.
- 30 line pair high resolution and point source.
- Subslice and supra-slice low contrast.
- Wave insert.
- Bead insert.



Magphan® Phantoms

Magphan® Phantoms are designed to perform a wide range of precision performance evaluations of Magnetic Resonance Imaging (MRI) Scanners.



Precision design for maximum evaluation

The Magphan®'s patented spherical design combines precise alignment of spherical geometry with cubic geometry. As magnetic field characteristics are mapped according to spherical harmonics, natural magnetic fields extend to diagonally symmetric volumes (DSVs), or spheres.

Tests – Summary

- Spatial uniformity.
- Signal-to-noise ratio (SNR).
- Spherical geometry.
- In-vitro sample testing.
- Geometric distortion (spatial linearity).
- Pixel (matrix) size verification.
- Scan slice width and contiguity.
- Verification of patient alignment system.
- Spatial resolution up to 11 line pairs per cm (0.45 mm resolution).
- Low contrast sensitivity.
- T1 and T2 measurements.
- Evaluation of 3-dimensional volume reconstruction.

Spherical Magphan®

Spherical Magphan® is a urethane sphere composed of two hemispherical shells with an inner diameter of 20 cm. The shells are connected with a simple threaded flange connecting ring. The test cube assembly can be quickly removed without tools for greater imaging flexibility and easy access for cleaning and maintenance.

Cylindrical Magphan®

Cylindrical Magphan® has a removable end plate for internal access. The acrylic cylinder has an outer diameter of 20 cm and an inner diameter of 19 cm.

Magphan® Quantitative Imaging Phantom

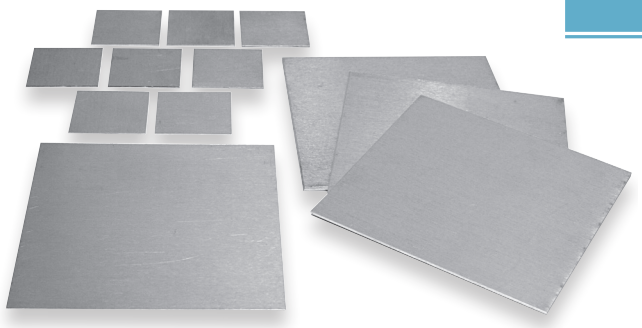
The Magphan® Quantitative Imaging Phantom was developed with physicist Richard Mallozzi, Ph.D., to provide detailed mapping of image distortion. The phantom contains an array of polycarbonate spheres. Known and scanned sphere positions are compared, yielding up to fourth-order measurements of scanner distortion.

Phantoms for Dose Measurements on CT Scanners

The phantom set consists of one 16 cm head phantom with 5 holes, and a 32 cm body annulus with 4 holes provided in a hard case with built-in trolley.

Specifications

Material	Acrylic plastic (PMMA)
Thickness	15 cm
Diameter	16 cm (head phantom) 32 cm (body annulus)
Hole Arrangement (Head Phantom)	One in centre and four around periphery 90° apart 1 cm from the edge
Hole Diameter	13 mm
Plug Length	15 cm
Plug Diameter	12.5 mm
Weight	7 kg (head phantom) 9 kg (body annulus)



HVL Filter

Aluminium filter set for measuring half value layers (type 1100, Al 99,0% purity).

The kit can be used in both mammography and radiography and comes in two different sizes:

Small: 14 pieces of 33 x 33 mm filters of different thicknesses (6 x 1 mm, 2 x 0.5 mm, 4 x 0.1 mm, and 2 x 0.05 mm).

Large: 100 x 100 mm filters are also available for use with larger ionisation chambers.

HVL Stand available.

VISI-X

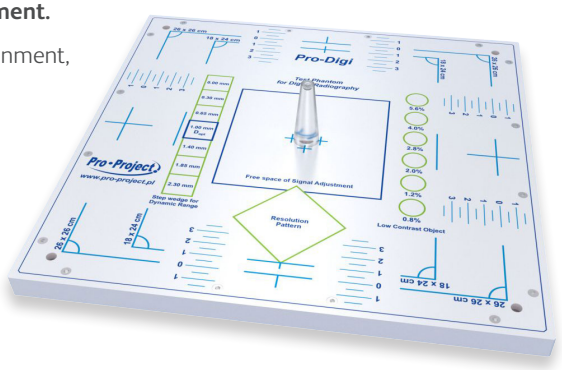
A field position analyser that saves both time and money.

- Measures the alignment between radiation and light field and is a proven concept in Quality Control and Service.
- A cassette shaped instrument for checking the light and radiation field coincidence for X-ray equipment.
- The Visi-X an also be used to check the centering of the bucky tray.
- No requirement for film.

Pro-Project Pro-Digi

The Pro-Digi Phantom is dedicated for acceptance and constancy tests of digital radiography equipment.

It can be used to measure: collimation/beam alignment, position and size of the effective radiation field, dynamic range, spatial resolution, contrast resolution, and homogeneity.



- 7-step copper wedge.
- 6 low contrast elements.
- Free area for signal calibration.
- Markings to determine the size and position of the effective radiation field.
- Pattern for line pair resolution evaluation (from 0.6 to 5.0 LP/mm).
- Optional cone for perpendicular X-ray beam control in the range of 0° ÷ 1.5°

Pro-Project Pro-Dent

The Pro-Dent set is a universal set of phantoms for carrying out constancy and acceptance tests of conventional and digital dental X-ray units (intra-oral, panoramic and cephalometric).

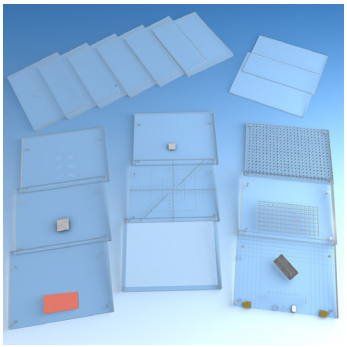
This is not an all-in-one device where results of tests blur each other out. This is the only solution on the market that makes it possible to measure the X-ray beam collimation with a dental film or a digital detector.

It can be used to carry out tests such as: dose reproducibility, development process stability, perpendicular X-ray beam (0° ÷ 1.5°), limitation and alignment of the X-ray beam (including beam radius measurement), spatial/line pair resolution (perpendicular, parallel and rotated 45° to anode-cathode line), and low contrast resolution.

Pro-Project Pro-DigiMAM

This versatile phantom can be used for monitoring technical parameters of digital mammography imaging systems.

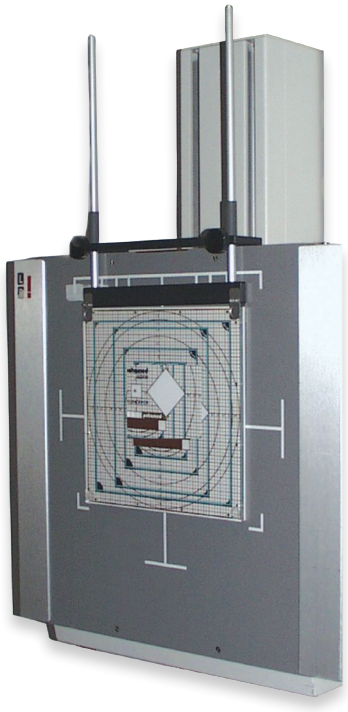
It can be used to measure optical density/luminance in the reference point, spatial resolution, threshold contrast visibility, contrast, effective radiation field, automatic exposure timer, CNR and SNR, NPS, MTF, ghosting, filaments, artefacts, evaluation, geometric distortion check, and contrast details.

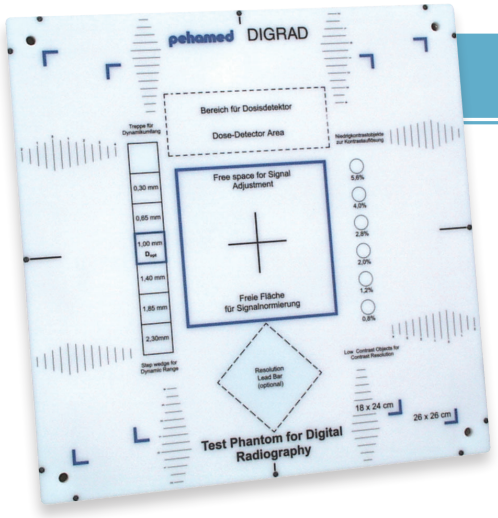


Alpha System Test Tools

Designed to test the relative positions of the X-ray field, light beam diaphragm and vertical X-ray beam alignment, all in one exposure.

- Alpha Phantom – for testing synchronicity of the radiation field to that of the Light Beam Diaphragm.
- Centre Tube – fixes to the Alpha phantom to check the accuracy of the Vertical Beam Alignment.
- Bucky Wall Stand Holder – an adjustable hanger that supports the Alpha phantom on the face of a vertical Bucky.





DIGRAD Test Phantom

For routine performance testing of DR Imaging systems. DIGRAD phantom is able to test parameters including:

- (Optional) Special holder for vertical bulky systems.
- Dynamic range – 7 step copper step wedge.
- Low contrast detectability 6 objects (15 mm).
- Spatial resolution – Lead bar pattern rotated 45°
- Signal calibration – 10 x 10 cm free area.
- Effective radiation field – Field markings.

Gonad 'T' Shields / Thyorid 'D' Shields

Lead shielding encased in a moulded grey plastic cover, these 'T' shields are supplied as a set of three, one in each size (small, medium, large).

Easy to adjust and comfortable to wear, the Thyroid 'D' Shields have a Velcor collar fastening and are available in a choice of colours.

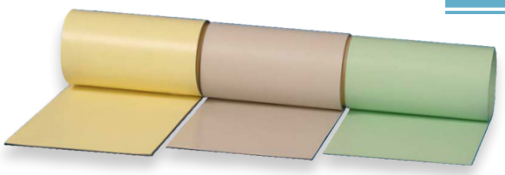
Lead Rubber Gloves

A range of seamless lead rubber X-ray gloves which offer good flexibility and are easy to clean.

Lead Protective Glasses

Offering a combination of practicality and protection these wraparound lead protective glasses feature side protection and are supplied complete with ties.

Lead Vinyl Sheeting



PVC costed lead vinyl sheeting with a wipe clean finish on both sides, These sheets are easy to cut and shape with scissors or a knife. They are 60 cm wide and only supplied in full metre lengths.

Lead Protective Aprons

Double sided lead aprons available in a variety of sizes and colours featuring a single shoulder clip, with a one piece velcro belt.

All aprons are fitted with generous shoulder pads for extra comfort and are available in petite, small, medium, large, and in a variety of lengths.

Standard Lead Vinyl Option

Guaranteed protection against most forms of ionising radiation.

Lead Free/Low Weight Option

Latest light weight formulation with advantages of disposability.

Tracerco Personal Electronic Dosimeter (PED)

Ideal for users who are not specially trained to measure radiation exposure, the PED family have been specially designed to be easy to use and understand. Encased in weather, shock and drop proof housings each PED features a smooth clean design and simple to use DoseVision™ software.

- Detects X-rays and gamma rays from 33 keV - 1.33 MeV.
- One touch operation.
- Easy to read large Amoled display screen displaying dose rate, accumulated dose and animated silhouette indicating dose received.
- Multiple languages.
- Multiple users.
- Waterproof up to 1 m.

PED-IS

This intrinsically safe PED is perfect for both radiation specialists and those who do not work with radiation every day. Robust and reliable, it is safe to use in potentially explosive areas, making it ideal for challenging environments.

PED Blue

This is the non-intrinsically safe version of the PED-IS. Lighter, it retains the same high quality design and features a direct micro USB connection.

PED+

An advanced version of the PED Blue, it can be used as both a PED and a hand held dose rate survey meter. The PED+ has a number of added features, such as Bluetooth, GPS and pop-up message alarms.

Service and Support

Southern Scientific has a team of fully qualified service engineers, who support customers spanning the length and breadth of the UK. We can provide factory or on-site service as required, based on single visits, planned maintenance or full support under contract. We maintain a high level of spare parts, ensuring lifetime support capability.

Our systems group can offer its service for the larger installed equipment, from initial planning to installation, completion and training. We can provide expert knowledge and experience, gained through involvement in a number of large-scale projects throughout the years.

ISO Certified

Southern Scientific Ltd is certified to ISO9001 and ISO 13485 representing the high level of quality assurance and management that we provide at every stage of the supply process, whether a product is distributed on behalf of our trusted manufacturers or constructed in our UK workshop. This accreditation means that our customers can place an order knowing that the delivered product will be suitable for its intended use, fully compliant with EU legislation and in full working order.

All our products are CE marked.

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