DIAGNOSTIC IMAGING

peo MEDICAL

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Partner Quart

QUART X-Ray QA Solutions is a German-based provider of quality assurance technologies for diagnostic imaging and radiological applications. Their offerings encompass QA phantoms, dosimetry tools, measurement systems, and analysis software, supporting medical professionals in maintaining high standards of patient safety and imaging accuracy.

Product offering

Darkscan duo ref

QUART DVTap DIN 6868-161

Darklight duo

MaVo_lux C Base

MaVo_lux 5032B

MaVo_spot

QUART MONI_lux

K2

MAS1

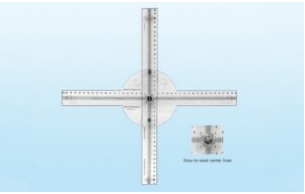
MAK1

QUART didoMAS

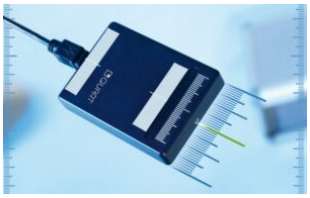
ED 150

Gamma Twin

X-Ray Ruler



QUART nonius



QUART dido/time M

QUART dido/time RF

QUART dido/time R

didoEASY M / didoEASY+ M / didoEASY++ M

didoEASY R / didoEASY+ R / didoEASY++ R

Diagnostic Imaging

Darkscan duo ref

Calibrated Reference Sensitometer and Scanning Densitometer

The darkscan duo ref is a high-precision combination of reference sensitometer and scanning densitometer in one unit.

It is designed for acceptance testing as well as daily routine testing of x-ray film-screen equipment according to IEC 61223-2-1, DIN V 6868-55, and DIN 6868-2 standards.

The device combination provides functional and technical advantages such as one power supply (batteries or rechargeable batteries), less maintenance cost, and less room for operation or storage.

The sensitometer section is suitable for blue and green x-ray films. The exposition for blue and green films is manually adjustable in 5 steps. The step wedge with 21 steps has an optical step wedge constant of 0.15. The exposition homogeneity of each step is almost constant. The maximum tolerance is ± 0.01 log (H).

Diagnostic Imaging

QUART DVTap DIN 6868-161

QUART DVTap DIN 6868-161

Developed over a period of 2 years in a project involving major dental manufacturers, and released by QUART already in 2007, the DVTap has become a national and international standard solution for CBCT – based on our company’s innovative approach.

The QUART DVTap phantom is designed to be used as a universal tool for 3D imaging equipment including CT applications. The phantom fully complies with DIN 6868-161 for acceptance tests in DVT/CBCT.

In conjunction with a specially developed software (QUART DVTtec), quick and comprehensive CBCT IQ tests can be performed.

Only one exposure is necessary to create a 3D data set containing all required parameters to evaluate CBCT image quality. Automated evaluation is performed with the unique QUART DVTtec software.

The phantom can be used for field sizes from 4x4cm to large fields-of-view (FOV). A universal holder or customized phantom holders are available for easy and reproducible positioning.

Technical specifications

- Spatial resolution: Line spread function
- Resolution: Z-Resolution
- Standard test objects: PMMA / Air / PVC
- Material equivalents : Free Air / Soft tissue / Bone
- Positioning tools: Linear (top side) / Selective markers
- Size: Ø 16 cm, height: 15 cm
- Scatter Radiation modules: 1x 6 cm / 1x 5 cm

Parameters

- Nyquist Frequency (NF)
- Contrast-to-Noise Ratio (CNR)
- Homogeneity / Image Uniformity
- Z-Resolution
- Modulation Transfer Function (MTF)
- Artefacts, Image Flaws
- Figure of Merit / Acceptance Indicator

https://peomedical.com/webinar/quality-control-in-cone-beam-

computed-tomography-cbct-efomp-estro-iaea-protocol/attachment/quart-dvt-kp/

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Diagnostic Imaging

Darklight duo

Routine Test Sensitometer and Densitometer

The darklight duo devices fulfil all requirements of the IEC 61223-2-1 and DIN 6868-2 standards for daily constancy or routine tests.
The combination of both sensitometer and densitometer into one device provides ease of use, lower acquisition cost and handling advantage

← Back to partner

Diagnostic Imaging

MaVo_lux C Base

Ambient Light Meter

The MaVo_lux C Base light meter is a single-purpose device primarily for ambient light measurement.
It features illumination only measurement for indoor or outdoor environments. Light measurement is performed in Class C mode.

← Back to partner

Diagnostic Imaging

MaVo_lux 5032B

Medical Light and Luminance Meter

The MaVo_lux 5032B light and luminance meter was developed specifically for medical application.
It features luminance and illumination measurement in a single device. Light measurement is performed in Class B mode.

← Back to partner

Diagnostic Imaging

MaVo_spot

Precision Light and Luminance Meter

The MaVo_spot USB is a precision instrument for specific requirements of medical light measurement applications.
It features a measuring angle of 1° (strict Class B requirement) and provides luminance measurements for distances between 1m to 1°.
The MaVo_spot is equipped with a high-quality SLR optical system having a viewing field of 15° and marked measuring angle of 1° in the center. An external focusing ring is also provided.
Two close-up lenses (optional) allow for measuring distances down to 34 cm.
Contact measurements of the luminance directly on the screen of the monitor can be performed with a photometric measuring probe (optional accessory for this purpose).

Diagnostic Imaging

QUART MONI_lux

QUART MONI_lux

The QUART MONI_lux is designed for real-time monitoring of light and ambient light conditions.

The device evaluates and signals if present light conditions are suitable for critical assessment of x-ray images and if ergonomic working conditions are present.

The MONI_lux can be applied in digital or conventional X-ray imaging environments (e.g. on top of monitors or view boxes)
The QUART MONI_lux automatically checks if the ambient light is not too bright to ensure proper viewing conditions. For this purpose, it has been factory-calibrated to signal the appropriate (green) range between 20 – 50 lux.
The device also signals when the room light is too dark for critical image assessment (yellow). The reason for this is that in environments that are too dark, light areas in an X-ray image tend to glare when viewed on a view box or on a digital monitor.
Its power supply can be established from an available USB port at any workstation.
The QUART MONI_lux complies with IEC 61223-2-5 and DIN 6856-1.

Diagnostic Imaging

K2

Basic kVp and Timer Meter

The meter enables non-invasive measurement of tube current and exposure time. Two Device Options are available: K2 for the normal range / K2L for the sensitive range. Exposure Time is measured in Milliseconds.
The meter automatically detects AC or DC and auto-resets after each measurement.

Diagnostic Imaging

MAS1

Basic mA/mAs and Timer Meter

The meter measures the tube current of x-ray generators and calculates the product of exposure time and mA for mAs. An improved circuitry increases accuracy and reliability. The meter features automatic detection of AC / DC.
A self-setting procedure eliminates the need to reset. The display provides all information at once eliminating the need for multiple exposures.

Diagnostic Imaging

MAK1

Basic mAs/kVp/Timer Meter

The meter combines two instruments into one unit: kVp and mAs in one package. The mAs section is self-resetting, and the kVp measurement is non-invasive. The meter can be used on AC or DC x-rays. It measures kVp, mA, mAS, and exposure time.
The instrument case is durable ABS plastic housing.

Diagnostic Imaging

QUART didoMAS

Real-Time mA/mAs Meter

The QUART didoMAS meters automatically set the range of measurement. No pre-setting is required for direct reading of mA, mAs, and time parameters.
The meters can be used throughout the complete range of radiographic equipment including fluoroscopic or mammography exposures.
The meter is powered by a rechargeable battery. One charge is sufficient to last approximately 80 hours of continuous use. Recharging the meter until full takes only between 3–4 hours. A warning will appear on the display when the battery is running low.
The QUART didoMAS features an extra-long cable between the base and the detector unit. A customized cable for the connection between the detector head and circuit is included in the delivery.

The connection between circuit and the detector unit is polarity independent. The mA is refreshed and displayed every second.

Diagnostic Imaging

ED 150

Electronic Personal Dose Meter w/ Dose Rate Indicator and Alarm Function

The ED150 is a dose rate meter for the measurement of gamma radiation and X-rays for dose equivalent p(10).
It features an energy-compensated Geiger-Müller-tube detector in a compact casing with a large specially shaped LC display.
The meter provides dose rate indication upon keystroke, reliable and safe measurement of radiation in front of the user‘s body (solid detection at an angle of 180°). Upon request, the alarm thresholds can be configured to customer requirements. In addition, the meter has a switchable acoustic single-pulse indication, menu-driven user navigation storage of dose value, and set parameters also during battery change.
IP67 protection class.

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Diagnostic Imaging

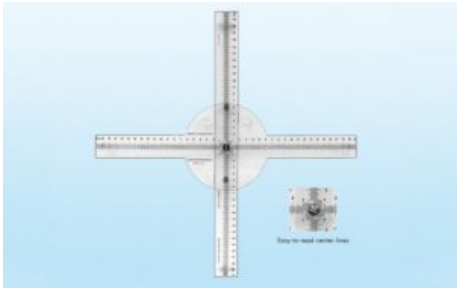
Gamma Twin

Compact Dose Rate Meter

The Gamma Twin is a PTB-approved dose rate meter for the measurement of gamma radiation and X-rays for ambient dose rate equivalent p*(10) and ambient dose equivalent H*(10) (local dose).
It features an energy-compensated Geiger-Müller-tube detector in a compact casing with a large backlit LC display. The meter provides selectable simultaneous or separate indications of dose and dose rate together with an analog dose rate logarithmic bar graph. Four preset dose and dose rate alarm thresholds are available. Upon request, the alarm thresholds can be configured to customer requirements. In addition, the meter has a switchable acoustic single-pulse indication, automatic and continuous storage of the dose into a non-volatile memory, storage of the dose, and set parameters even at battery change. IP54 protection class (splash proof)

Diagnostic Imaging

X-Ray Ruler



Cross Shaped Radiopaque X-Ray Ruler

Set of 440 mm “0” center cross-shaped rulers on a center aluminum pin.
The center is designed to easily read all 20 graduations in all directions from the center, with no graduation overlap.
The set swings open for use and closes for storage in the case. The base ruler has a built-in stabilizer with clear rubber feet to keep its position on the image receptor.
A set of lines on the base helps the user quickly align the rulers at 90° to each other.
Felt bumpers keep the rulers from scratching each other.

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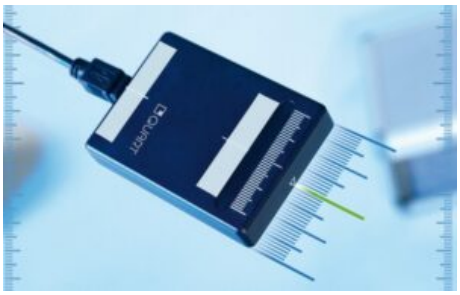
Diagnostic Imaging

QUART nonius



Direct Electronic X-Ray Ruler for Field and Fan-Beam Measurement

The QUART nonius is an easy-to-use and very sophisticated measuring instrument to verify the size and geometrical properties of **X-ray fields**. It can also be used to analyze characteristics of **fanned X-ray beams** as used in **CT** or dental panoramic X-rays (**OPG**).
The QUART nonius is incredibly flexible: it is suitable for digital as well as conventional X-ray modalities. In any case, its precision is an absolute strong point – as it achieves a resolution in the so-called nonius range of **0.1 mm**.
The nonius software, to operate the device, is available as a single or multi-user **on-premise installation**.
Digitization in X-ray technology makes traditional screen films 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. For that purpose, it features markings to line up the light field or positioning lasers.
Recent studies have proven that QUART nonius can also be used for field measurement in radiation therapy applications.*

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Diagnostic Imaging

QUART dido/time M

Routine Test Dosemeter for Mammography QA/QC 25-35 kV

The QUART dido/time meters are designed for straightforward dose/dose reference measurements as required in x-ray routine QA/QC. Routine tests are usually carried out in regular intervals to ensure the adequate performance of X-ray equipment. The QUART dido/time meters are perfect tools for that application.
The meter is ready for use immediately after activation. No presetting procedure is required. Simply position the detector and expose it to acquire the routine check parameters. The QUART dido/time M is calibrated to Mo/Mo radiation quality.
In x-ray quality control the meters are used with an image quality control phantom.

Diagnostic Imaging

QUART dido/time RF

Routine Test Dosemeter for X-Ray and Fluoro QA/QC 50-150 kV

The QUART dido/time meters are designed for simple and straightforward dose/dose reference measurements as required in x-ray routine QA/QC. Routine tests are usually carried out in regular intervals to ensure the adequate performance of x-ray equipment. The QUART dido/time meters are perfect tools for that application.

The meters are ready for use immediately after activation. No presetting procedures are required. Simply position the detector expose to acquire the routine check parameters. The QUART dido/time RF features a detector embedded in a 25.0 mm Al patient equivalent filter. Such a set-up had been introduced in German QA regulations to simulate x-ray imaging reality in quality control processes.

In x-ray quality control the meters are used together with an image quality control phantom.

← Back to partner

Diagnostic Imaging

QUART dido/time R

Routine Test Dosemeter for X-Ray QA/QC 50-150 kV

The QUART dido/time meters are designed for simple and straight-forward dose/dose reference measurements as required in x-ray routine QA/QC. Routine tests are usually carried out in regular intervals to ensure the adequate performance of x-ray equipment. The QUART dido/time meters are perfect tools for that application.

The meters are ready for use immediately after activation. No presetting procedures are required. Simply position the detector and expose it to acquire the routine check parameters.

In x-ray quality control the meters are used together with an image quality control phantom.

← Back to partner

Diagnostic Imaging

didoEASY M / didoEASY+ M / didoEASY++ M

Dosemeter Series for X-Ray Service and QA in Mammography

- QUART didoEASY M, Art. 11116, Basic Configuration
- QUART didoEASY+ M, Art. 11116+, Added kV Measurement
- QUART didoEASY++ M, Art. 11116++, Added kV and Direct-HVL Measurement

The QUART didoEASY meters are designed for users who emphasize high precision in dosimetric applications but do not require the performance of a full-range dosemeter package. QUART didoEASY meters can be used to measure parameters that are essential for service and quality assurance operations at x-ray equipment such as dose, dose rate, and time. Of course, as with all QUART meters – with maximum precision.

- kVp and PPV measurements are available in the QUART didoEASY**+** M version.
- Direct-HVL **and** kVp / PPV measurements are available in the QUART didoEASY**++** M version.

Diagnostic Imaging

didoEASY R / didoEASY+ R / didoEASY++ R

Dosemeter Series for X-Ray Service and QA in R&F and Dental

- QUART didoEASY R, Art. 11115, Basic Configuration
- QUART didoEASY+ R, Art. 11115+, Added kV Measurement
- QUART didoEASY++ R, Art. 11115++, Added kV and Direct-HVL Measurement

The QUART didoEASY meters are designed for users who emphasize high precision in dosimetric applications but do not require the performance of a full-range dosemeter package. QUART didoEASY meters can be used to measure parameters that are essential for service and quality assurance operations at x-ray equipment such as dose, dose rate, and time. Of course, as with all QUART meters – with maximum precision.

- kVp and PPV measurements are available in the QUART didoEASY**+** R version.
- Direct-HVL **and** kVp / PPV measurements are available in the QUART didoEASY**++** R version.

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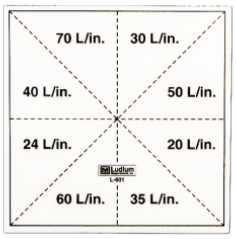
Partner Ludlum Medical Physics (LMP)

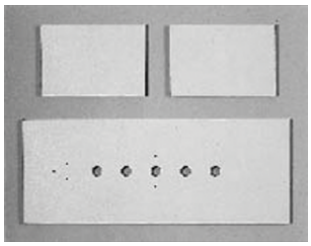
Ludlum Medical Physics (LMP), a division of Ludlum Measurements, Inc., specializes in radiation safety and medical imaging quality assurance (QA) solutions. Their comprehensive product line supports healthcare professionals in maintaining high standards of patient safety and diagnostic accuracy across various medical disciplines.

Product offering

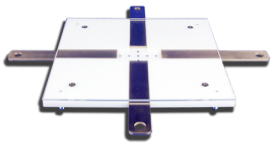
Model L-601, L-618, L-619 Fluoroscopic Resolution Test Tools



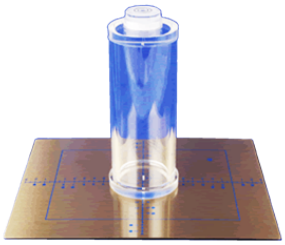
Model L-644 Grid Alignment Test Kit



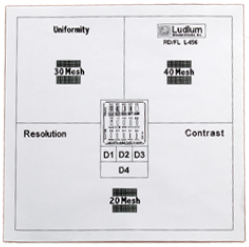
Model L-600 Fluoroscopic Beam Alignment Tool



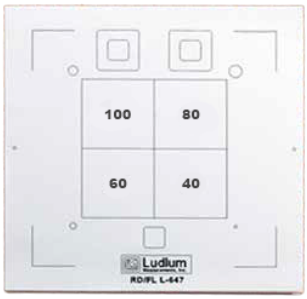
Model L-661-662 Collimator/Beam Alignment Test Tool



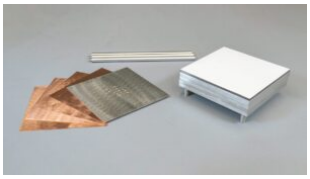
Model L-656 RD/FL Contrast/Resolution Test Tool



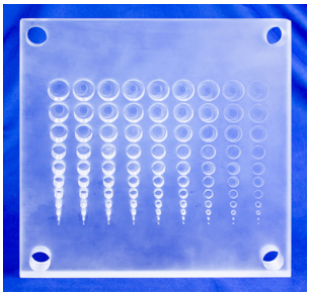
Model L-647 RD/FL Contrast/Resolution Test Tool



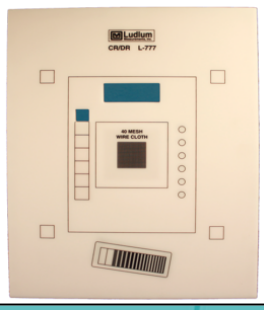
Model L-706 Patient Penetrometer Kit



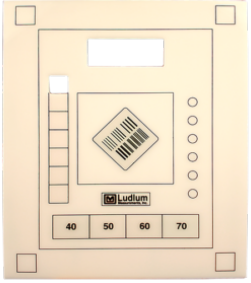
Model L-760-LC1 Low Contrast Resolution Plate



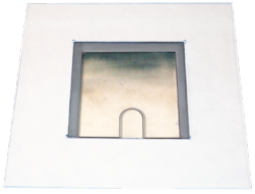
Model L-777 CR/DR Digital Phantom Test Tool



Model L-777-Mini CR/DR Mini Test Tool

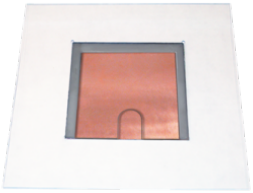


Model L-435 HVL Filter Holder

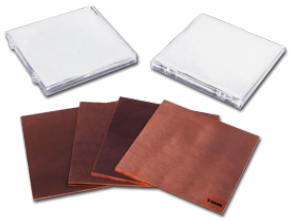


Model L-051 TG-51 Linac Filter

Model L-116 CR/DR TG-116 Filter Holder Set



Model L-430, L-431, L-434 HVL Filter Plates



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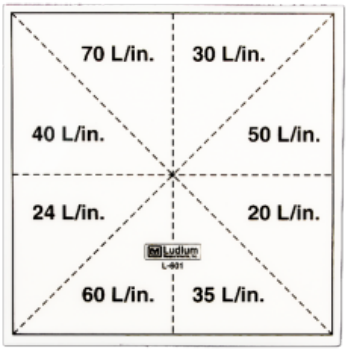
Diagnostic Imaging

Model L-601, L-618, L-619 Fluoroscopic Resolution Test Tools



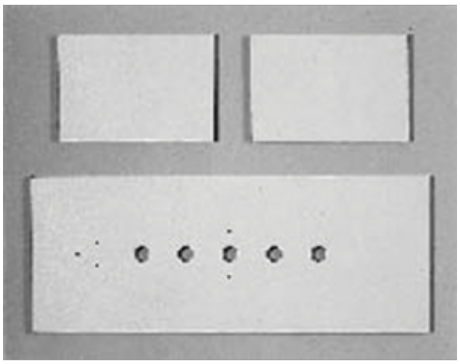
The Fluoroscopic Resolution Test Tools provide a quick general check on image intensifier or digital video system resolution. The test tool is an acrylic plate containing eight groups of copper and brass mesh screening. Three models are offered (see table below), each with different resolutions for standard, medium, and high-resolution ranges covering from 20 up to 150 lines per inch (LPI). Clearly marked sections of the tool identify the number of lines of wire mesh per inch in that segment. The mesh screens are purposely arranged in a non-sequential rotation pattern to permit better visualization of the sometimes subtle changes in mesh thickness.

Model	Resolution	Part Number
L-601	20 - 70 LPI	99-9407
L-618	30 - 100 LPI	99-9408
L-619	60 - 150 LPI	99-9409

Diagnostic Imaging

Model L-644 Grid Alignment Test Kit

The Ludlum Model L-644 Grid Alignment Test Kit is designed to confirm that the proper centering and height uniformity of a standard or focused grid is correctly aligned with the central axis of the X-ray beam.



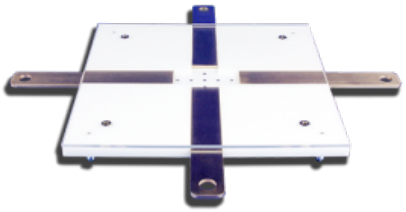
The test procedure is simple and requires that the holed test plate is centered to the X-ray table and positioned such that the length of the tool is perpendicular to the direction of the grid lines. One exposure is then made centered over each hole in the test plate. After processing, the film (image) is examined for potential changes in optical density. A properly centered and level grid should provide five equal densities on the test film (image).

The test kit includes one plate, 22.9 x 8.9 cm (9 x 3.5 in.), with five test holes. There are also two blocking plates, which measure 8.9 x 6.0 cm (3.5 x 2.4 in.). All three plates are made of 0.16 cm (0.06 in.) thick lead encased in acrylic material for ease of handling.

Diagnostic Imaging

Model L-600 Fluoroscopic Beam Alignment Tool

The Ludlum Fluoroscopic Beam Alignment device consists of an aluminum plate with four sliding brass strips set in recessed channels. The strips define the border or visible area of the image receptor. A plastic overlay prevents any vertical displacement of the brass strips. Holes drilled in half-inch intervals are filled with higher density material for visibility through the brass strips. The device, when placed in the center of the image receptor, is designed to correct or optimize fluoroscopic collimation.

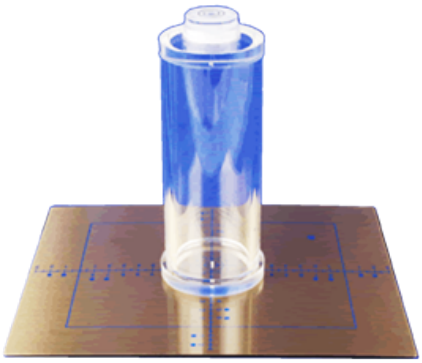


Any portion of the fluoroscopic field that falls outside the image receptor does not contribute to a useful image and can lead to unnecessary exposure to the patient. This very simple but critical measurement will identify a misaligned fluoroscopic system.

Diagnostic Imaging

Model L-661-662 Collimator/Beam Alignment Test Tool

The Ludlum Model L-661-662 Collimator/ Beam Alignment test tool provides the necessary verification of the proper congruence of the collimator light field and the X-ray beam. Misalignment of the collimator may cause key portions of the image to be missing from the radiographic image.



The beam alignment (cylinder) portion of the test tool confirms that the central ray is perpendicular to the image receptor. Improper beam alignment will cause a distorted radiographic image.

The test tool is easy to use and readily identifies misalignments and improper angulation of the X-ray tube.

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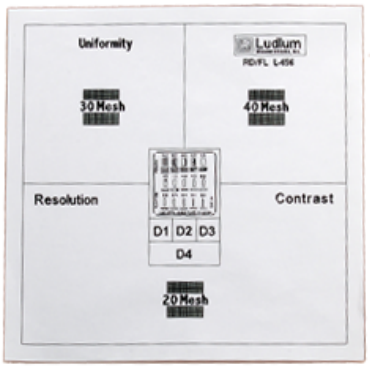
Diagnostic Imaging

Model L-656 RD/FL Contrast/Resolution Test Tool

The RD/FL Test Tools are used to quickly assess the image quality and performance of diagnostic radiographic and fluoroscopic imaging systems. The ability to measure contrast and resolution in one exposure allows the operator to quickly determine whether or not the system is working correctly.

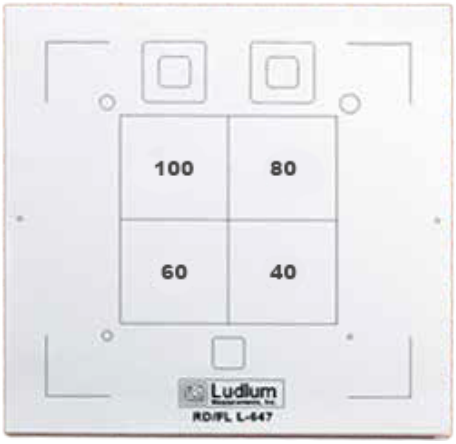


The Model L-656 has three mesh patterns: 20, 30, and 40 lines per inch. At the center of the test tool is a line pair resolution pattern and a short contrast scale that allows simultaneous evaluation of the resolution, contrast, and density uniformity of the imaging chain.

Diagnostic Imaging

Model L-647 RD/FL Contrast/Resolution Test Tool

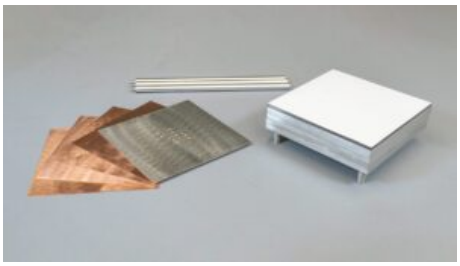
The RD/FL Test Tools are used to quickly assess the image quality and performance of diagnostic radiographic and fluoroscopic imaging systems. The ability to measure contrast and resolution in one exposure allows the operator to quickly determine whether or not the system is working correctly.



The Model L-647 has center quadrants numbered to correspond to the lines of wire mesh per inch (40, 60, 80, and 100). The tool also has four low-contrast targets of varying diameters (2, 4, 6, and 8 mm), a contrast square, two monitor adjustment squares, and a copper attenuator to simulate the attenuation of a small adult.

Diagnostic Imaging

Model L-706 Patient Penetrometer Kit



Features

- Three High-Purity Aluminum Plates
- One Laminated Lead Stop Plate
- Four Copper Plates
- One Resolution Plate
- Two Sets of Spacing Rods

The Ludlum Model L-706 Patient Penetrometer Kit provides the necessary patient phantom attenuation material to test the exposure rate output of any standard or digital fluoroscopic system. This kit is designed to work with almost all X-ray exposure or multimeter measurement devices.

The three high-purity aluminum plates are used in combinations to simulate the different masses of an adult abdomen, a child abdomen, or an adult chest. Using all three plates represents 26 cm (10.2 in.) of water for a large adult abdomen at 90 kVp. A child abdomen or adult chest is simulated by using one or two of the plates depending on the age of the child and one for the small adult chest. Automatic brightness control at maximum output is evaluated using the lead “stop” plate, which is laminated to ensure the safety of the user.

The resolution plate has four columns of five holes each with hole diameters of the following sizes:

- Two columns with 6.4 mm, 4.5 mm, 3.2 mm, 2.2 mm, 1.6 mm (0.25 in., 0.176 in., 0.125 in., 0.088 in., 0.0625 in.) holes
- Two columns with 4.7 mm, 3.2 mm, 1.6 mm, 0.8 mm, 0.4 mm (0.187 in., 0.125 in., 0.0625 in., 0.032 in., 0.016 in.) holes

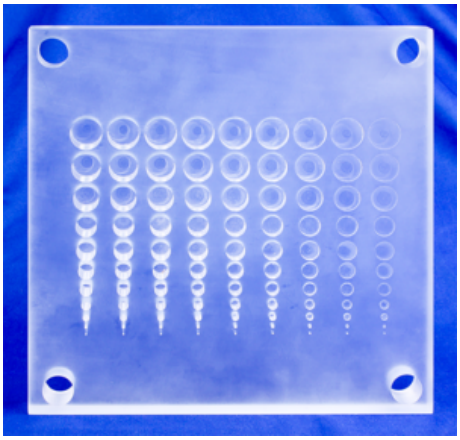
Typically two of the aluminum plates (one above and one below) are used to measure the contrast gradient of the image systems. Two sets of spacing rods in two different lengths are provided to act as spacers from the X-ray source.

IMPORTANT NOTICE

Recommendations from a revision of FDA-CFR-21 [CITE: 21CFR1020.30] indicate that the long-used Patient Penetrometer Plates should be larger by about 3.8 cm (1.5 in.) than the current 17.8 x 17.8 cm (7 x 7 in.) plates, in order to cover the entire X-ray beam during the testing of the X-ray and fluoroscopic systems. Ludlum also offers the **Model L-706-21** with a plate size of 21 x 21 cm (8.3 x 8.3 in.).

Diagnostic Imaging

Model L-760-LC1 Low Contrast Resolution Plate

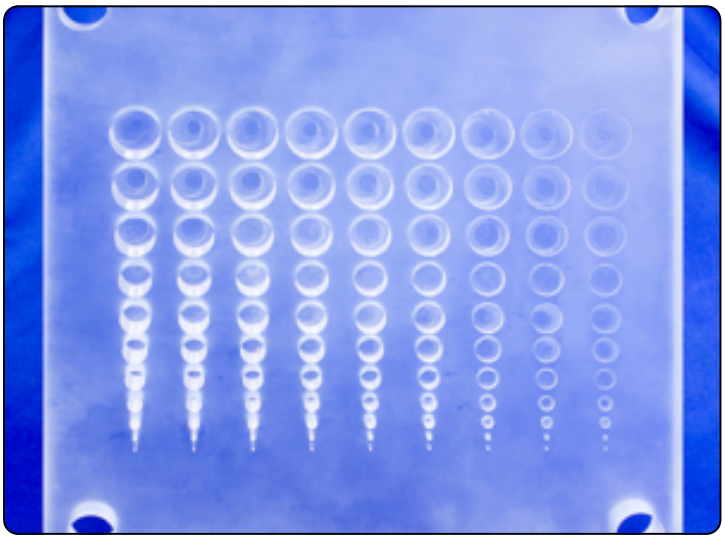


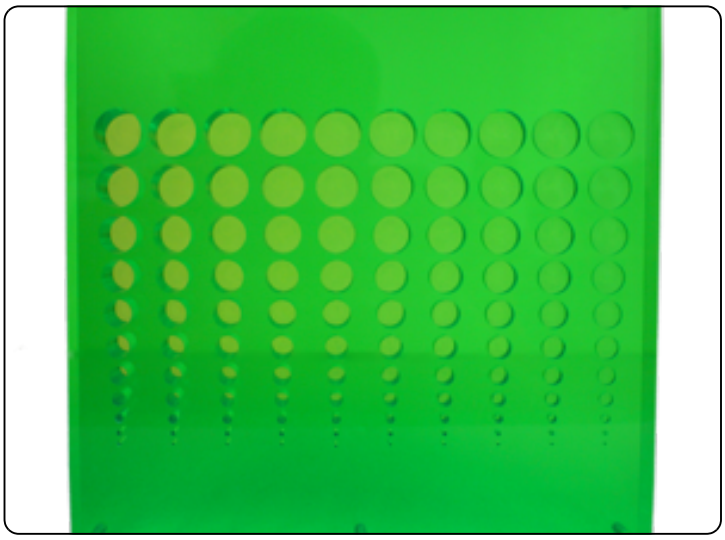
The Low Contrast Resolution Plate is a test tool designed to evaluate the resolution of digital radiography systems. A key concern of digital radiography is the visibility of low-contrast anatomy due to the potential loss of detail associated with film digitizers, imaging plates, printers, and digital display monitors. This plate offers a simple method to examine the digital system's ability to detect the smallest and shallowest low contrast targets on the plate. A weekly comparison of these images enables the user to maintain the standard of quality (benchmark) for the digital images being produced by the system.

This plate is intentionally made to the same overall size of the Model L-760 Acrylic Modular X-ray Phantom Kit plates. It may be used by itself or with the Model L-760. Using the resolution plate with the Model L-760 allows the user to add more attenuation.

The Model L-760-LC1 is available colorless, with green tint, or with blue tint.

The Model L-760-LC1 has holes that change incrementally by 2 mm in diameter from the top to bottom and by 2 mm in depth from right to left.





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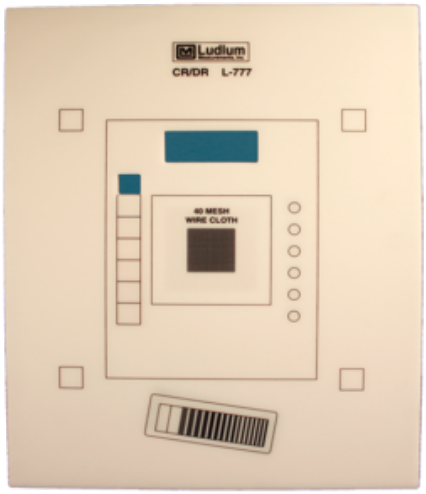
Diagnostic Imaging

Model L-777 CR/DR Digital Phantom Test Tool

The Ludlum CR/DR Test Tool is designed for the evaluation of the newer filmless digital CR (Computed Radiography) and DR (Digital Radiography) imaging systems.



The CR/DR Test Tool incorporates a variety of testing parameters that, when used daily, tracks geometry (region of interest) symmetry, line pair resolution, as well as low and high contrast performance. Measurements of the various targets allow for evaluation of both the monitor and printed film image. The CR/DR tool will become a valuable asset to the QA technologist and the medical physicist trying to determine the source of an image quality problem or complaint.

The large size, 43.2 x 35.6 cm (17 x 14 in.) (H x W), makes it ideal for quick checks on automated chest systems.

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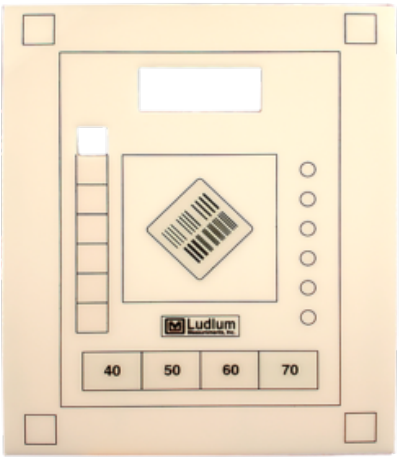
Diagnostic Imaging

Model L-777-Mini CR/DR Mini Test Tool

The L-777-Mini CR/DR Test Tool utilizes a variety of testing parameters that track the uniformity, contrast, and resolution of the imaging system. This is done by the imaging of a variety of targets within the tool that provide subjective and precise values that are used to monitor the High Contrast, Low Contrast, Gross Resolution, and Fine Resolution, as well as general uniformity and general edge sharpness of the imaging system.



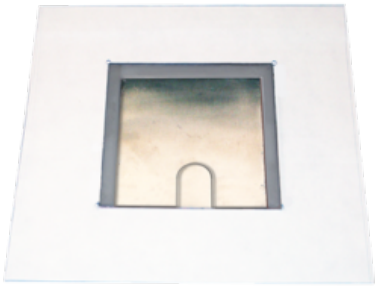
The L-777-Mini is used to make a sample image of the approved system. This image is saved and used as a benchmark for future evaluation of the system. Frequency of the future evaluations of the image system are determined by the QA manager. Testing can be performed daily, weekly, or as directed by the medical physicist or quality assurance manager. The more frequent the testing the less likely a negative trend will develop.

When degradation of the imaging system is suspected or following any service to the system, an image of L-777-Mini is done and compared to the original benchmark image. When degradation of the image is suspected, the benchmark image becomes proof of the potential quality of the system and a guide for the service technician as to the quality expectations required of the system.

Diagnostic Imaging

Model L-435 HVL Filter Holder

The new Ludlum L-435 HVL Filter Holder is designed to simplify the routine HVL measurement process. For years the method of attaching the HVL filters to the X-ray collimator involved using quantities of medical/surgical tape. While tape does the job, it also tends to destroy the thinner aluminum filters, particularly the high purity mammography filters.



The Model L-435 HVL Filter Holder eliminates the need to use tape to attach the HVL filters to the collimator housing.

The filter holder consists of a polycarbonate base 24.1 x 24.1 cm (9.5 x 9.5 in.). Permanently bonded to the center of the base plate is an acrylic pocket, open on one side and designed to hold a standard or high purity Al filter set. The polycarbonate material is easily cut with a standard utility knife or sheers to accommodate the two most common collimator track sizes in a given department. The base may also be attached with the hook-and-loop type fastener strips supplied for odd sized collimators. In either case, the filters themselves are protected from damage associated with the application and removal of heavy medical/surgical tape.

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Diagnostic Imaging

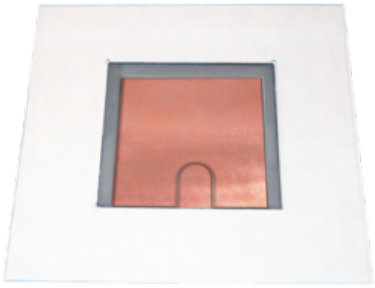
Model L-051 TG-51 Linac Filter

The primary purpose of the AAPM TG-51 dosimetry protocol is to provide a uniform methodology for a clinical reference dosimetry measurement. Both the photon and electron beams from accelerators need to be within the recommended nominal energies (Beam Quality). The methodology includes the application of a 1 mm thick lead foil that is placed just below the accelerator head to reduce the electron contamination, and therefore, help to specify the beam quality. The lead foil is typically attached to the accelerator head or to the blocking tray using surgical tape, wires, or whatever material is available.

The Ludlum Model L-051 TG-51 Linac Filter has been designed to simplify the task of making the prescribed Beam Quality Measurements, by providing a true 1 mm thick lead foil (± 0.2 mm) that has been specially bonded to a 30.5 x 30.5 cm (12 x 12 in.) polycarbonate (Lexan®) plate. The plate has an opening cut into the center, exposing a 10 x 10 cm (3.9 x 3.9 in.) area of the bonded 11 x 11 cm (4.3 x 4.3 in.) lead foil. This plate can be customized by the user to fit the tracks of most blocking trays. The polycarbonate material is easily cut with a standard utility knife or shears. The combination lead foil and polycarbonate plate helps to maintain the integrity of the lead foil and also makes it easier to handle and store the filter.

Diagnostic Imaging

Model L-116 CR/DR TG-116 Filter Holder Set



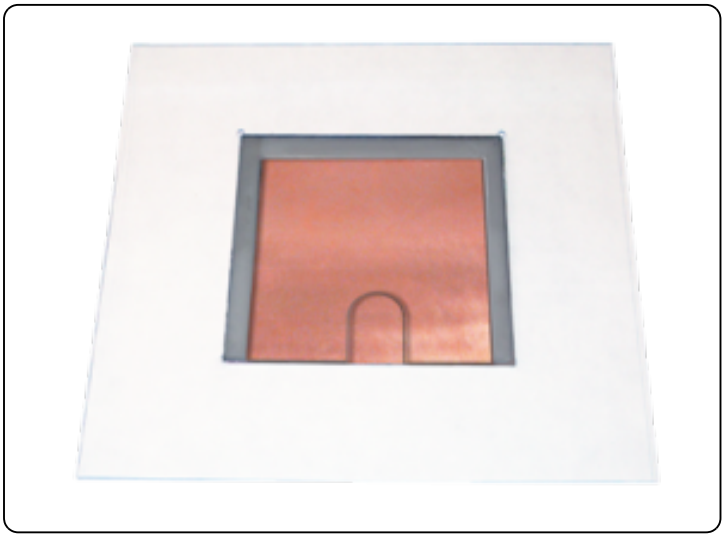
One of the key benefits of Digital Radiography (DR) is the ability to make image quality corrections after the exposure has been made. Image contrast, density, and brightness values are easily controlled at workstation display screens. Initial exposure settings are greatly simplified with DR. The technologist has significantly wider exposure latitude when setting up techniques for imaging various parts of the anatomy. However, this wide exposure latitude can also lead to potentially excessive patient exposure and subtle reductions in quality due to increased noise levels in the image.

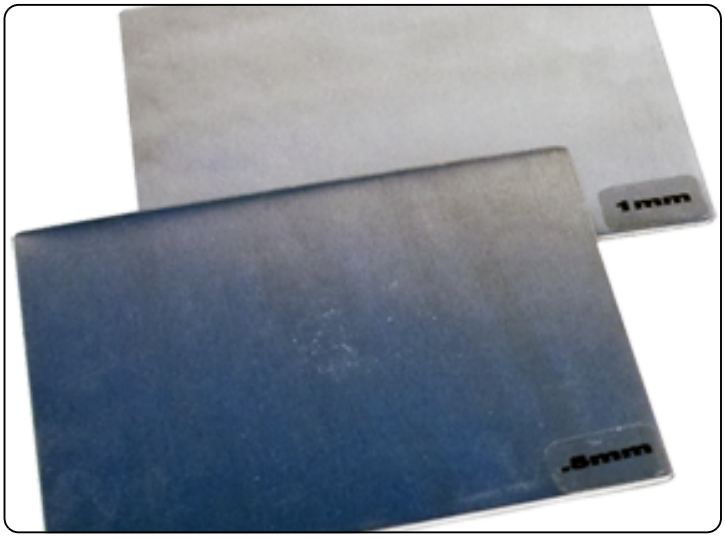
A recent report by the AAPM (Task Group 116) has suggested a mechanism to monitor the radiation exposure and noise level of the typical digital detector. The process involves using a standard range of exposure techniques, and by adding or subtracting specific layers of beam hardening filters to simulate the filtration associated with various body tissues. The information obtained from the filtered beam spectrum would provide an exposure deviation index (DI) that could be used to determine the appropriate exposure needed to produce a quality (and dose appropriate) image of a given body part.

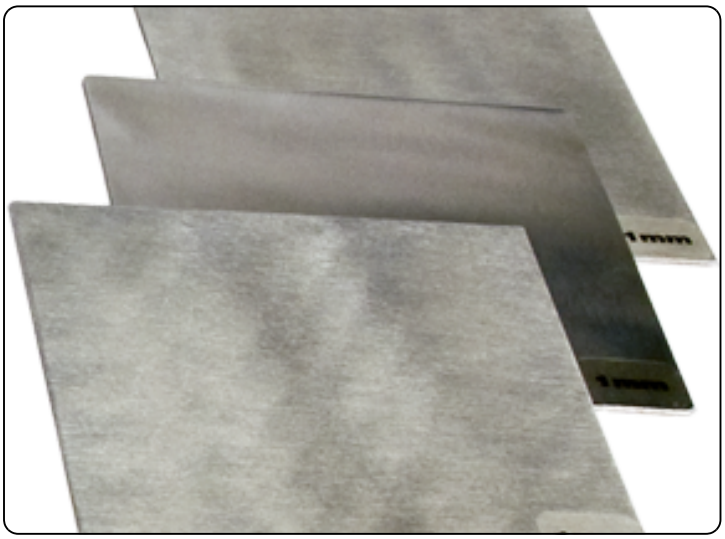
The new Ludlum CR/DR TG-116 Filter Holder Set is designed to simplify the filtration requirements needed to achieve the needed beam hardening conditions necessary to reach the desired Exposure DI for the various anatomical views being established.

The copper filter is permanently bonded to the polycarbonate base material. The copper filter is covered with an acrylic pocket. The pocket, open on one side, will hold all of the provided filters*. The polycarbonate material is easily cut with a standard utility knife or shears to accommodate the two most common collimator track sizes in a given department. The base may also be attached with the provided hook-and-loop strips for odd sized collimators.

**The TG-116 Filter Holder comes with four 1 mm Al filters and one 0.5 mm Al filter.*




1 mm
5mm

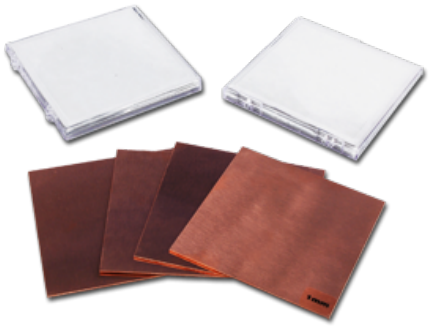

1 mm

Diagnostic Imaging

Model L-430, L-431, L-434 HVL Filter Plates

Standard and High Purity HVL Filter Plates are used to determine if there is sufficient inherent filtration in the X-ray beam to remove the damaging lower energy radiation being emitted from the X-ray tube.

Custom sizes and quantities are available upon request.



Standard and High Purity HVL Filter Plates are used to determine if there is sufficient inherent filtration in the X-ray beam to remove the damaging lower energy radiation being emitted from the X-ray tube.

Custom sizes and quantities are available upon request.

	Specifications
Filter Set	Set of eleven 10 cm x 10 cm plates Total Weight: 0.5 kg (1 lb)
Plates ations)	Set of ten 10 cm x 10 cm plates Total Weight: 0.5 kg (1 lb)
Plates ations)	Set of twenty 10 cm x 10 cm plates Total Weight: 0.9 kg (2 lb)
Plates ations)	Set of thirty 10 cm x 10 cm plates Total Weight: 1.4 kg (3 lb)
ter Set cations)	Set of six 10 cm x 10 cm plates Total Weight: 0.5 kg (1 lb)

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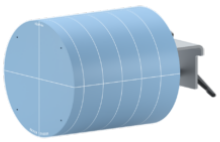
Partner Other

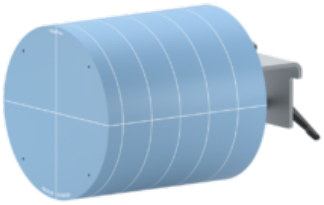
Product offering

IQphan™ Comprehensive CT Image Quality Phantom



IQphan™ Comprehensive CT Image Quality Phantom

- Perform QA across CT imaging systems, from sophisticated diagnostic scanners to cone beam to on-board radiotherapy systems
- Use with RapidCHECK™ Image Quality Analysis software for exacting CT imaging quality testing, with quick, consistent analysis
- Made from true tissue-mimicking HE CT Solid Water®



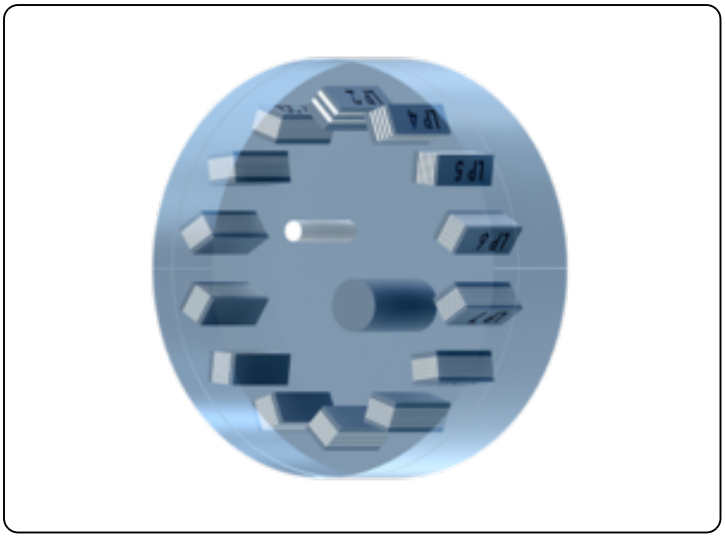
There are a multitude of CT imaging systems, spanning the diagnostic and radiation therapy spaces. This breadth has been a challenge for QA because of the different performance characteristics of these systems. With IQphan, a single phantom addresses QA across the range of specifications of different CT scanners, enabling you to gain more QA information than may be available with other phantoms.

Comprehensive Image Quality Phantom

With IQphan, users can perform QA across CT imaging systems, from sophisticated diagnostic scanners to cone beam to on-board radiotherapy systems. A combination of modules supports a robust variety of tests.

Automated Analysis

Use IQphan with RapidCHECK™ Image Quality Analysis software for exacting CT imaging quality testing, with quick, consistent analysis.

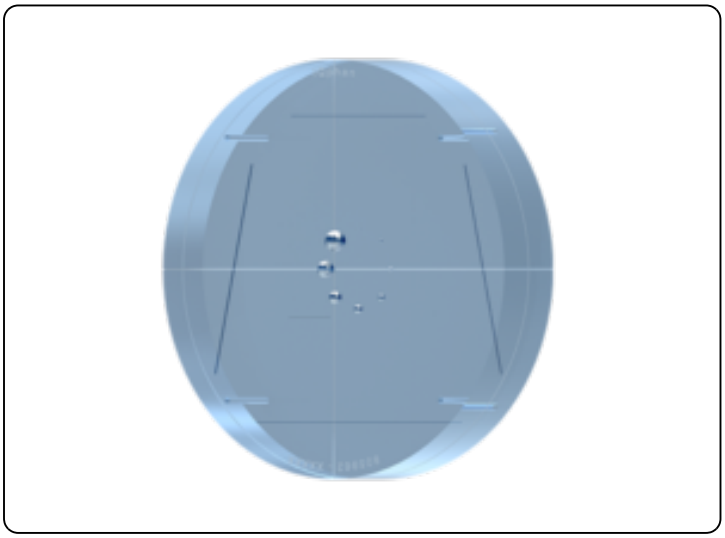


High-Contrast Resolution Module

Designed for manual and automated analysis, this module features high-resolution line pairs, large 3D patterns that are easy to visualize, and robust data analysis in the RapidCHECK software.

- All line pair targets oriented 45° to radial line for a consistent balance between radial and circumferential resolution

- Includes high resolutions up to 22 lp/cm
- Designed for automation: Includes solid samples of resolution materials for accurate results during software analysis[1]
- Zinc high-contrast material provides visibility without over-ranging scanners



Slice Thickness & Geometric Evaluation Module

Multiple wire-ramp materials and diameters enable this module to analyze slice thickness on scanners ranging from diagnostic CT to CBCT and MVCT.

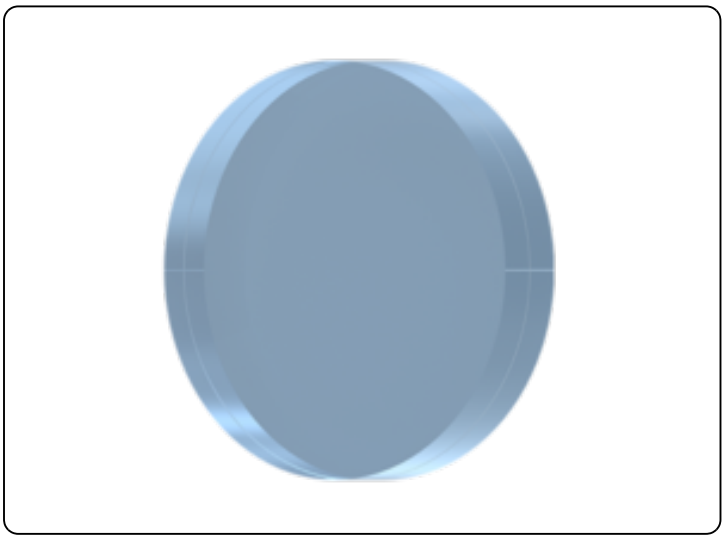
- Measure slice thickness with two opposed pairs of wire ramps, one pair thinner and one pair thicker
- Enables Modulation Transfer Function with one-off vertical wire
- Check geometric accuracy with a set of 8 acrylic spheres
- Perform MTF measurements with BB’s of two different sizes
- Robust across a wide range of CT systems, from diagnostic to RT

Low-Contrast Detectability Module

Finally, a low-contrast test that works for radiation therapy systems as well as diagnostic CT. Challenge your high-end systems with 0.3% and 0.6% contrasts. Test your radiation therapy CT systems with body-like contrasts of 1.0% and 2.0%, in sizes ranging from 2.0 to 25.0 mm.

- Evaluate Low Contrast Detectability at four different contrast levels: 0.3%, 0.6%, 1.0%, and 2.0% (3 HU, 6

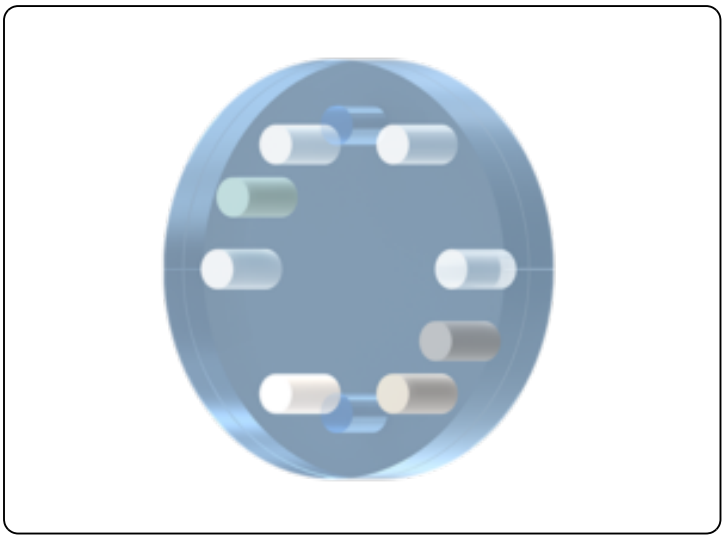
HU, 10 HU, and 20 HU)
- Sizes of each contrast object range from 2 to 25 mm
- Low-Z density-based contrasts
- The four precisely formulated contrast levels use density variations of low-Z materials for consistency across CT energies



Uniformity Module

Assess noise and uniformity in our HE CT Solid Water material.

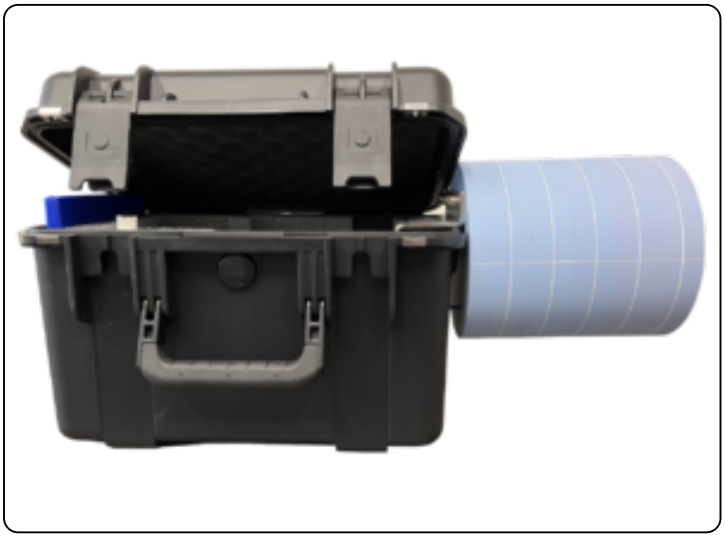
- Measure uniformity and noise
- Constructed of HE CT Solid Water for unparalleled water equivalency across the energy spectrum



HU Module

Test the consistency of known HU materials and measure the effective energy of the scan.

- 12 material samples
- Materials include Tissue-Mimicking Materials (TMMs) as well as commonly referenced plastics
- Bone is not just dense plastic; TMMs include higher-Z materials that can improve calibrations and effective energy measurements



QA MEASUREMENT SYSTEMS

peo MEDICAL

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Partner Quart

QUART X-Ray QA Solutions is a German-based provider of quality assurance technologies for diagnostic imaging and radiological applications. Their offerings encompass QA phantoms, dosimetry tools, measurement systems, and analysis software, supporting medical professionals in maintaining high standards of patient safety and imaging accuracy.

Product offering

Darkscan duo ref

Darklight duo

MaVo_lux C Base

MaVo_lux 5032B

MaVo_spot

QUART MONI_lux

K2

MAS1

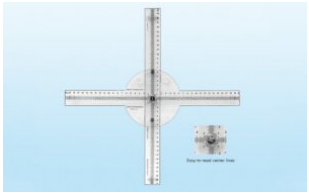
MAK1

QUART didoMAS

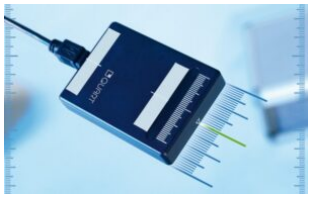
ED 150

Gamma Twin

X-Ray Ruler



QUART nonius



QUART dido/time M

QUART dido/time RF

QUART dido/time R

didoEASY M / didoEASY+ M / didoEASY++ M

didoEASY R / didoEASY+ R / didoEASY++ R

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Diagnostic Imaging

Darkscan duo ref

Calibrated Reference Sensitometer and Scanning Densitometer

The darkscan duo ref is a high-precision combination of reference sensitometer and scanning densitometer in one unit.

It is designed for acceptance testing as well as daily routine testing of x-ray film-screen equipment according to IEC 61223-2-1, DIN V 6868-55, and DIN 6868-2 standards.

The device combination provides functional and technical advantages such as one power supply (batteries or rechargeable batteries), less maintenance cost, and less room for operation or storage.

The sensitometer section is suitable for blue and green x-ray films. The exposition for blue and green films is manually adjustable in 5 steps. The step wedge with 21 steps has an optical step wedge constant of 0.15. The exposition homogeneity of each step is almost constant. The maximum tolerance is ± 0.01 log (H).

← Back to partner

Diagnostic Imaging

Darklight duo

Routine Test Sensitometer and Densitometer

The darklight duo devices fulfil all requirements of the IEC 61223-2-1 and DIN 6868-2 standards for daily constancy or routine tests.
The combination of both sensitometer and densitometer into one device provides ease of use, lower acquisition cost and handling advantage

← Back to partner

Diagnostic Imaging

MaVo_lux C Base

Ambient Light Meter

The MaVo_lux C Base light meter is a single-purpose device primarily for ambient light measurement.
It features illumination only measurement for indoor or outdoor environments. Light measurement is performed in Class C mode.

← Back to partner

Diagnostic Imaging

MaVo_lux 5032B

Medical Light and Luminance Meter

The MaVo_lux 5032B light and luminance meter was developed specifically for medical application.
It features luminance and illumination measurement in a single device. Light measurement is performed in Class B mode.

← Back to partner

Diagnostic Imaging

MaVo_spot

Precision Light and Luminance Meter

The MaVo_spot USB is a precision instrument for specific requirements of medical light measurement applications.
It features a measuring angle of 1° (strict Class B requirement) and provides luminance measurements for distances between 1m to 1°.
The MaVo_spot is equipped with a high-quality SLR optical system having a viewing field of 15° and marked measuring angle of 1° in the center. An external focusing ring is also provided.
Two close-up lenses (optional) allow for measuring distances down to 34 cm.
Contact measurements of the luminance directly on the screen of the monitor can be performed with a photometric measuring probe (optional accessory for this purpose).

Diagnostic Imaging

QUART MONI_lux

QUART MONI_lux

The QUART MONI_lux is designed for real-time monitoring of light and ambient light conditions.

The device evaluates and signals if present light conditions are suitable for critical assessment of x-ray images and if ergonomic working conditions are present.

The MONI_lux can be applied in digital or conventional X-ray imaging environments (e.g. on top of monitors or view boxes)
The QUART MONI_lux automatically checks if the ambient light is not too bright to ensure proper viewing conditions. For this purpose, it has been factory-calibrated to signal the appropriate (green) range between 20 – 50 lux.
The device also signals when the room light is too dark for critical image assessment (yellow). The reason for this is that in environments that are too dark, light areas in an X-ray image tend to glare when viewed on a view box or on a digital monitor.
Its power supply can be established from an available USB port at any workstation.
The QUART MONI_lux complies with IEC 61223-2-5 and DIN 6856-1.

Diagnostic Imaging

K2

Basic kVp and Timer Meter

The meter enables non-invasive measurement of tube current and exposure time. Two Device Options are available: K2 for the normal range / K2L for the sensitive range. Exposure Time is measured in Milliseconds.
The meter automatically detects AC or DC and auto-resets after each measurement.

Diagnostic Imaging

MAS1

Basic mA/mAs and Timer Meter

The meter measures the tube current of x-ray generators and calculates the product of exposure time and mA for mAs. An improved circuitry increases accuracy and reliability. The meter features automatic detection of AC / DC.
A self-setting procedure eliminates the need to reset. The display provides all information at once eliminating the need for multiple exposures.

Diagnostic Imaging

MAK1

Basic mAs/kVp/Timer Meter

The meter combines two instruments into one unit: kVp and mAs in one package. The mAs section is self-resetting, and the kVp measurement is non-invasive. The meter can be used on AC or DC x-rays. It measures kVp, mA, mAS, and exposure time.
The instrument case is durable ABS plastic housing.

Diagnostic Imaging

QUART didoMAS

Real-Time mA/mAs Meter

The QUART didoMAS meters automatically set the range of measurement. No pre-setting is required for direct reading of mA, mAs, and time parameters.
The meters can be used throughout the complete range of radiographic equipment including fluoroscopic or mammography exposures.
The meter is powered by a rechargeable battery. One charge is sufficient to last approximately 80 hours of continuous use. Recharging the meter until full takes only between 3–4 hours. A warning will appear on the display when the battery is running low.
The QUART didoMAS features an extra-long cable between the base and the detector unit. A customized cable for the connection between the detector head and circuit is included in the delivery.

The connection between circuit and the detector unit is polarity independent. The mA is refreshed and displayed every second.

← Back to partner

Diagnostic Imaging

ED 150

Electronic Personal Dose Meter w/ Dose Rate Indicator and Alarm Function

The ED150 is a dose rate meter for the measurement of gamma radiation and X-rays for dose equivalent p(10).
It features an energy-compensated Geiger-Müller-tube detector in a compact casing with a large specially shaped LC display.
The meter provides dose rate indication upon keystroke, reliable and safe measurement of radiation in front of the user‘s body (solid detection at an angle of 180°). Upon request, the alarm thresholds can be configured to customer requirements. In addition, the meter has a switchable acoustic single-pulse indication, menu-driven user navigation storage of dose value, and set parameters also during battery change.
IP67 protection class.

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Diagnostic Imaging

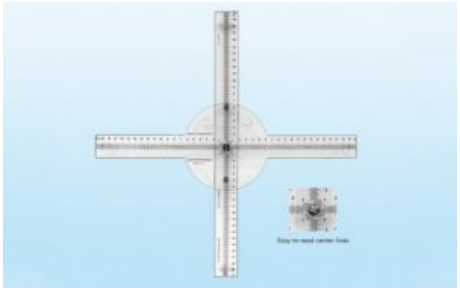
Gamma Twin

Compact Dose Rate Meter

The Gamma Twin is a PTB-approved dose rate meter for the measurement of gamma radiation and X-rays for ambient dose rate equivalent p*(10) and ambient dose equivalent H*(10) (local dose).
It features an energy-compensated Geiger-Müller-tube detector in a compact casing with a large backlit LC display. The meter provides selectable simultaneous or separate indications of dose and dose rate together with an analog dose rate logarithmic bar graph. Four preset dose and dose rate alarm thresholds are available. Upon request, the alarm thresholds can be configured to customer requirements. In addition, the meter has a switchable acoustic single-pulse indication, automatic and continuous storage of the dose into a non-volatile memory, storage of the dose, and set parameters even at battery change. IP54 protection class (splash proof)

Diagnostic Imaging

X-Ray Ruler



Cross Shaped Radiopaque X-Ray Ruler

Set of 440 mm “0” center cross-shaped rulers on a center aluminum pin.
The center is designed to easily read all 20 graduations in all directions from the center, with no graduation overlap.
The set swings open for use and closes for storage in the case. The base ruler has a built-in stabilizer with clear rubber feet to keep its position on the image receptor.
A set of lines on the base helps the user quickly align the rulers at 90° to each other.
Felt bumpers keep the rulers from scratching each other.

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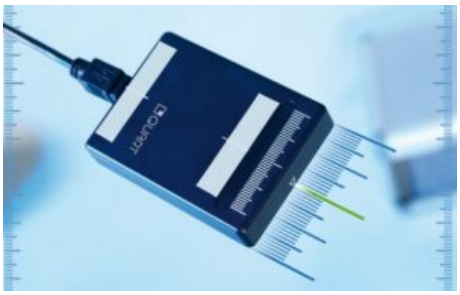
Diagnostic Imaging

QUART nonius



Direct Electronic X-Ray Ruler for Field and Fan-Beam Measurement

The QUART nonius is an easy-to-use and very sophisticated measuring instrument to verify the size and geometrical properties of **X-ray fields**. It can also be used to analyze characteristics of **fanned X-ray beams** as used in **CT** or dental panoramic X-rays (**OPG**).
The QUART nonius is incredibly flexible: it is suitable for digital as well as conventional X-ray modalities. In any case, its precision is an absolute strong point – as it achieves a resolution in the so-called nonius range of **0.1 mm**.
The nonius software, to operate the device, is available as a single or multi-user **on-premise installation**.
Digitization in X-ray technology makes traditional screen films 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. For that purpose, it features markings to line up the light field or positioning lasers.
Recent studies have proven that QUART nonius can also be used for field measurement in radiation therapy applications.*

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Diagnostic Imaging

QUART dido/time M

Routine Test Dosemeter for Mammography QA/QC 25-35 kV

The QUART dido/time meters are designed for straightforward dose/dose reference measurements as required in x-ray routine QA/QC. Routine tests are usually carried out in regular intervals to ensure the adequate performance of X-ray equipment. The QUART dido/time meters are perfect tools for that application.
The meter is ready for use immediately after activation. No presetting procedure is required. Simply position the detector and expose it to acquire the routine check parameters. The QUART dido/time M is calibrated to Mo/Mo radiation quality.
In x-ray quality control the meters are used with an image quality control phantom.

Diagnostic Imaging

QUART dido/time RF

Routine Test Dosemeter for X-Ray and Fluoro QA/QC 50-150 kV

The QUART dido/time meters are designed for simple and straightforward dose/dose reference measurements as required in x-ray routine QA/QC. Routine tests are usually carried out in regular intervals to ensure the adequate performance of x-ray equipment. The QUART dido/time meters are perfect tools for that application.

The meters are ready for use immediately after activation. No presetting procedures are required. Simply position the detector expose to acquire the routine check parameters. The QUART dido/time RF features a detector embedded in a 25.0 mm Al patient equivalent filter. Such a set-up had been introduced in German QA regulations to simulate x-ray imaging reality in quality control processes.

In x-ray quality control the meters are used together with an image quality control phantom.

← Back to partner

Diagnostic Imaging

QUART dido/time R

Routine Test Dosemeter for X-Ray QA/QC 50-150 kV

The QUART dido/time meters are designed for simple and straight-forward dose/dose reference measurements as required in x-ray routine QA/QC. Routine tests are usually carried out in regular intervals to ensure the adequate performance of x-ray equipment. The QUART dido/time meters are perfect tools for that application.

The meters are ready for use immediately after activation. No presetting procedures are required. Simply position the detector and expose it to acquire the routine check parameters.

In x-ray quality control the meters are used together with an image quality control phantom.

← Back to partner

Diagnostic Imaging

didoEASY M / didoEASY+ M / didoEASY++ M

Dosemeter Series for X-Ray Service and QA in Mammography

- QUART didoEASY M, Art. 11116, Basic Configuration
- QUART didoEASY+ M, Art. 11116+, Added kV Measurement
- QUART didoEASY++ M, Art. 11116++, Added kV and Direct-HVL Measurement

The QUART didoEASY meters are designed for users who emphasize high precision in dosimetric applications but do not require the performance of a full-range dosemeter package. QUART didoEASY meters can be used to measure parameters that are essential for service and quality assurance operations at x-ray equipment such as dose, dose rate, and time. Of course, as with all QUART meters – with maximum precision.

- kVp and PPV measurements are available in the QUART didoEASY**+** M version.
- Direct-HVL **and** kVp / PPV measurements are available in the QUART didoEASY**++** M version.

Diagnostic Imaging

didoEASY R / didoEASY+ R / didoEASY++ R

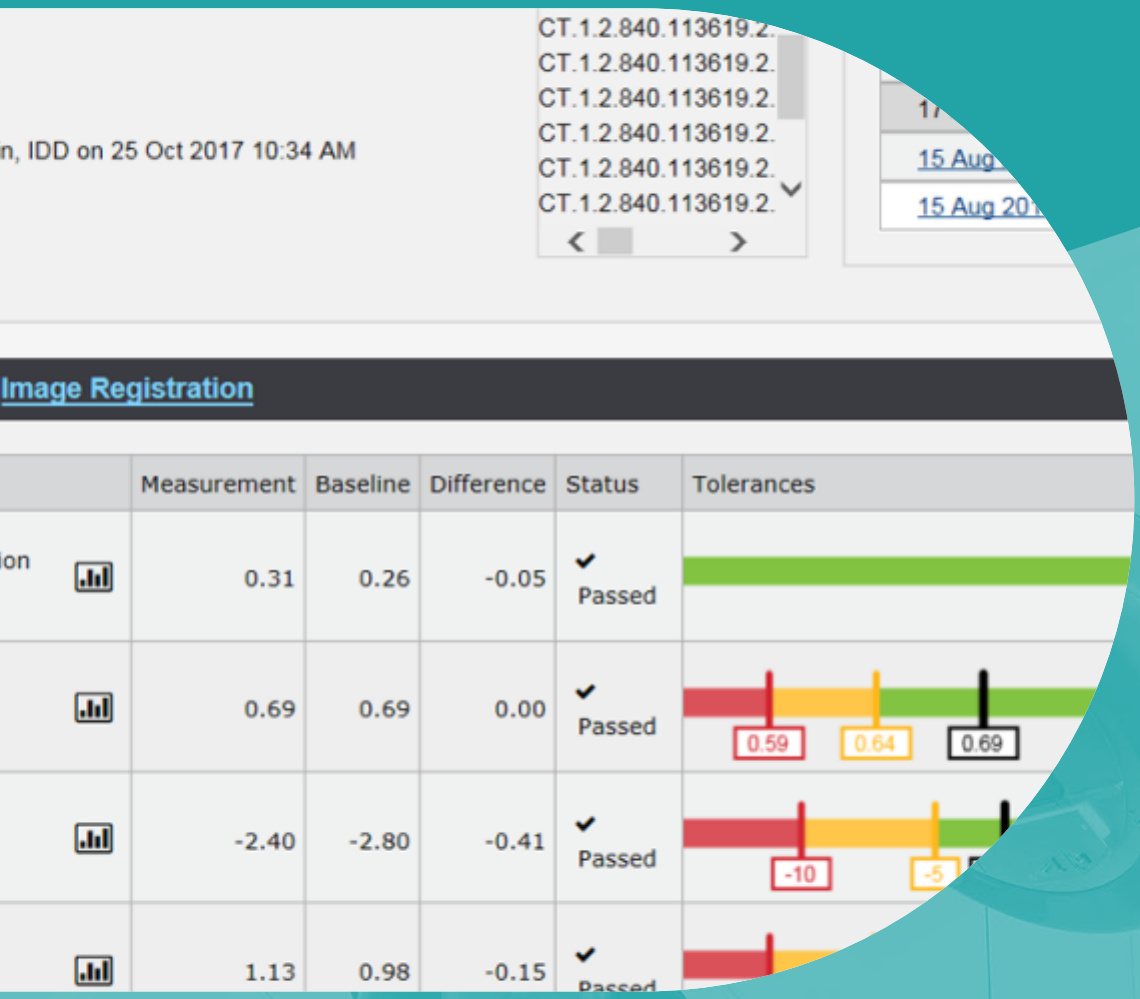
Dosemeter Series for X-Ray Service and QA in R&F and Dental

- QUART didoEASY R, Art. 11115, Basic Configuration
- QUART didoEASY+ R, Art. 11115+, Added kV Measurement
- QUART didoEASY++ R, Art. 11115++, Added kV and Direct-HVL Measurement

The QUART didoEASY meters are designed for users who emphasize high precision in dosimetric applications but do not require the performance of a full-range dosemeter package. QUART didoEASY meters can be used to measure parameters that are essential for service and quality assurance operations at x-ray equipment such as dose, dose rate, and time. Of course, as with all QUART meters – with maximum precision.

- kVp and PPV measurements are available in the QUART didoEASY**+** R version.
- Direct-HVL **and** kVp / PPV measurements are available in the QUART didoEASY**++** R version.

ANALYSIS SOFTWARE



peo MEDICAL

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Partner Bertin Technologies

Bertin Technologies is a global provider of advanced radiation detection and environmental monitoring solutions, specializing in handheld monitors, personal electronic dosimeters, environmental monitoring systems, and waste & recycling management technologies. Their instruments are designed to meet the rigorous demands of nuclear facilities, emergency response teams, and environmental agencies.

Product offering

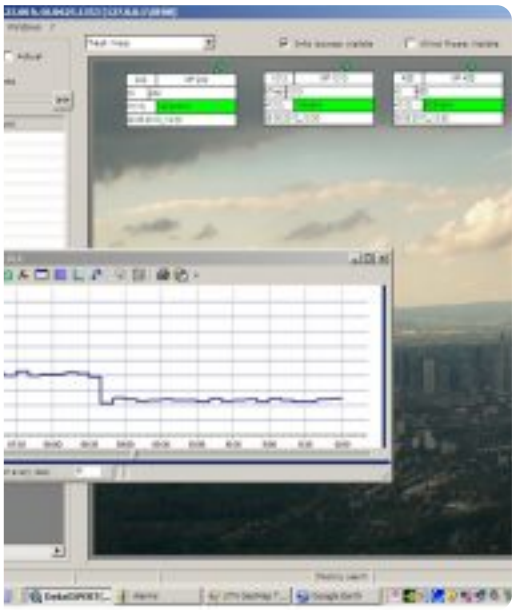
Dataexpert Software Solution – Saphymo

Dataexpert Software Solution – Saphymo

DataEXPERT software is a solution you can use to collect, manage, chart and evaluate data measured by sensors from Bertin Instruments for example. DataEXPERT is a very user-friendly solution that offers a powerful web-based interface available, not only on computers and laptops, but also for mobile use on tablets and smartphones.

The software shows the data in charts or tables, and with static or dynamic GIS map layers, so the data is easy to analyse. DataEXPERT eases the system management because it shows all technical and radiological events of the connected probes. The users have access to the system overview, and they can also adjust all instruments parameters with remote setup functions.

You can combine this software perfectly with Bertin's GammaTRACER probes for example.



DATAEXPERT SOFTWARE BENEFITS

- Can also import and display data from DVD-files (older data can be imported)
- Select data from different tools or measurement series in the database and display it
- Use alarm, zoom, display, mathematics and report functions
- Easily exportable data to Excel or SQL databases
- Use a display module like GEOMAP or Google Earth
- User friendly
- Compatible with Windows

Do you want to read more about the possibilities, visit our partner's website!

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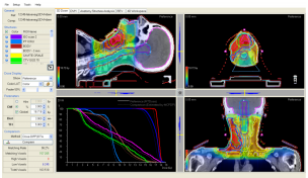
Partner Sun Nuclear Corporation

Sun Nuclear is a leading provider of comprehensive Quality Management solutions for radiation therapy and diagnostic imaging. Their portfolio encompasses positioning systems, dosimetry tools, QA phantoms, detectors, dose rate monitoring devices, analysis software, and training phantoms. These solutions are designed to support medical professionals in ensuring accurate, safe, and efficient patient care.

Product offering

RapidCHECK™ – Sun Nuclear

3DVH Software for Patient QA – Sun Nuclear



RapidCHECK™ – Sun Nuclear

RapidCHECK Diagnostic QA Software from Sun Nuclear is an automated, diagnostic QA software platform that brings together proven diagnostic QA phantoms and intuitive software for efficient and standardized diagnostic QA workflows.

Automate Diagnostic QA

You can use RapidCHECK with your CT ACR 464 Phantom for faster analysis and an easily searchable permanent record and trending reports. But you can also use RapidCHECK with your Advanced Electron Density Phantom to automatically find and identify the material of each rod, and to streamline the CT-to-Electron Density table report.

Browser-Based

Access RapidCHECK from any browser in your clinical network to simplify workflow regardless of clinic size.

RapidCHECK is the new diagnostic QA software platform from Gammex, a Sun Nuclear Company. This tool leverages the proven QA phantoms from Gammex and user-friendly software interface from Sun Nuclear to help you streamline your QA workflow and enhance quality and consistency. Whether you have one CT scanner, an entire fleet, or consult for dozens of different centers, RapidCHECK provides a framework for simplifying your clinical workflow. Software is installed locally and can be accessed from any browser within your clinical network.

Computed Tomography Module

The first RapidCHECK module integrates with your Gammex CT ACR 464 Phantom. From slice thickness, to resolution, to uniformity–generate a complete report of your CT ACR 464 Phantom in seconds. Remove the subjectivity from your evaluations with RapidCHECK’s evidence-based metrics.

How it Works

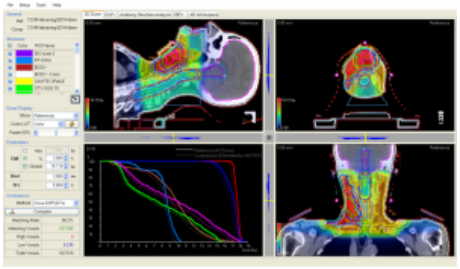
Define a baseline with your initial scan. RapidCHECK suggests tolerance values based on ACR guidelines and the empirical measurements. With the baseline set, each scan is evaluated and scored against your defined tolerances, eliminating inter/intra-use variation.

Trending and Historical Data

All images, analysis, trending and data are stored locally for fast and easy access. Configure reporting results to suit your needs. Easily review prior scans, analyze trends, and investigate anomalous results.

Combine RapidCHECK with the CT ACR 464 Phantom to automate CT image quality testing. Generate a complete report in seconds, with analysis of slice thickness, resolution, and uniformity. Built-in evidence-based metrics remove subjectivity from evaluations.

3DVH Software for Patient QA – Sun Nuclear



3DVH Software transforms the field of per-patient dose QA by generating clinically-relevant and intuitive analyses of complex IMRT and VMAT plans. With proven accuracy, 3DVH estimates the 3D dose to the patient-specific geometry.

3DVH Software features:

- fast results with automated tools – Quick Stat Templates,
- quick Dose Profiles, DICOM compliant workflow
- no forward dose calculation into the patient CT
- no commissioning
- uses existing measurements and devices
- with optional Respiratory MotionSim module, analyze the dosimetric impact of a moving target
- transform 2D measurements to 3D dose volume for advanced analysis
- perform 3D dose and DVH QA analysis on patient – not phantom – geometry
- supports coplanar and non-coplanar beams
- identify TPS and beam delivery errors
- intuitive and familiar presentation of dose and DVH with statistics per anatomical structure

3DVH Software compatibility:

- hardware: ArcCHECK, MapCHECK 2
- software: SNC Patien, EPIDose
- rotational therapy: RapidArc, VMAT
- static gantry: IMRT
- treatment planning systems: Pinnacle, Eclipse, and most TPS systems that can export DICOM data
- FFF & non-FFF deliveries

Read more about 3DVH Software on the Sun Nuclear website

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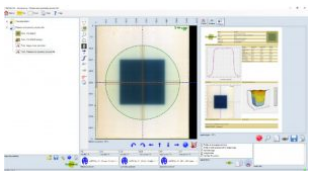
Partner Ashland

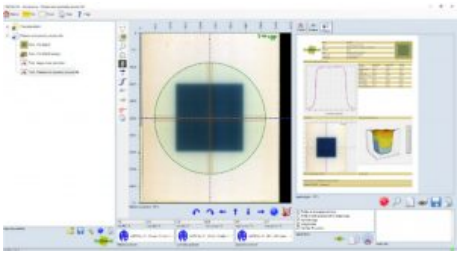
Ashland is a global leader in specialty materials, offering innovative solutions that enhance safety, precision, and patient outcomes across various medical disciplines. Their portfolio supports healthcare providers in radiation therapy, diagnostic imaging, wound care, and regenerative medicine.

Product offering

FilmQA Pro™ Software version 7 – Ashland



FilmQA Pro™ Software version 7 – Ashland



a sophisticated, quantitative analysis tool for Gafchromic™ Film

FilmQA Pro™ software is a sophisticated, quantitative analysis tool specifically designed to simplify and streamline the intensity-modulated radiation therapy quality assurance (IMRT QA). Our software is also effective for QA of SRS, SBRT and VMAT procedures. It allows you to scan or open images of exposed film and calculate the optimized dose maps.

FilmQA Pro™ software uses proprietary multi-channel dosimetry which eliminates or mitigates film and scanner artifacts by detecting whether errors are being made during scanning. In addition,, the software also has the one-scan analysis feature which combines calibration and plan verification in a single scan. The one-scan protocol requires only the patient film, a reference patch, and an unexposed patch. This protocol eliminates error sources such as interscan variability, which enables you to reduce errors to within 2 percent.

With FilmQA Pro™ software, you can get your results in minutes, post-exposure growth no longer is an issue and there is no waiting overnight for changes in the film to diminish. You can do an analysis any time you want, even at a moment's notice. The software delivers gamma passing rates ≥ 95 percent at 2 percent at 2 mm instead of using 3 percent at 3 mm.

key features and benefits

- lateral scan correction: apply a correction to compensation for lateral artifacts that can show in the scan
- new user friendly interface with a quick start menu
- one-scan protocol: fast and efficient method to achieve dose accuracy within 2%
- triple-channel dosimetry: use three color channels to optimize accuracy of dose calculations
- accurately calibrate: an entire lot with just four strips of film using our film-specific mathematical function
- quick-start screen: easily access the module you need at start-up
- dose error recognition: ability to identify accuracy of delivered dose
- superior resolution: get 100 percent of the picture from millions of measurements instead of just 0.1 percent
- no angular dependence: shoot the film from all angles, an entire plan on a single Gafchromic™ film, and validate the plan in the same way that the patient receives it

FilmQA Pro™ Software carries a CE Mark

BLOOD IRRADIATION INDICATORS

peo MEDICAL

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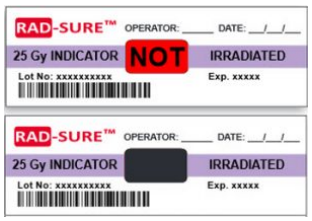
Partner Ashland

Ashland is a global leader in specialty materials, offering innovative solutions that enhance safety, precision, and patient outcomes across various medical disciplines. Their portfolio supports healthcare providers in radiation therapy, diagnostic imaging, wound care, and regenerative medicine.

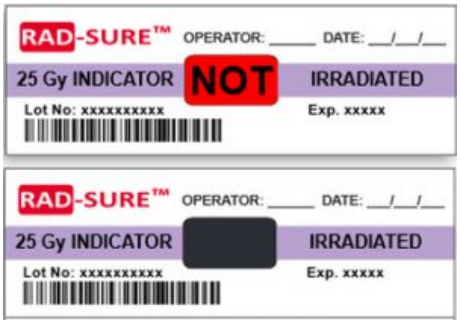
Product offering

Rad-Sure™ Blood Irradiation Indicators



Rad-Sure™ ChromicVue™

Rad-Sure™ Blood Irradiation Indicators



chemistry: radiochromic film

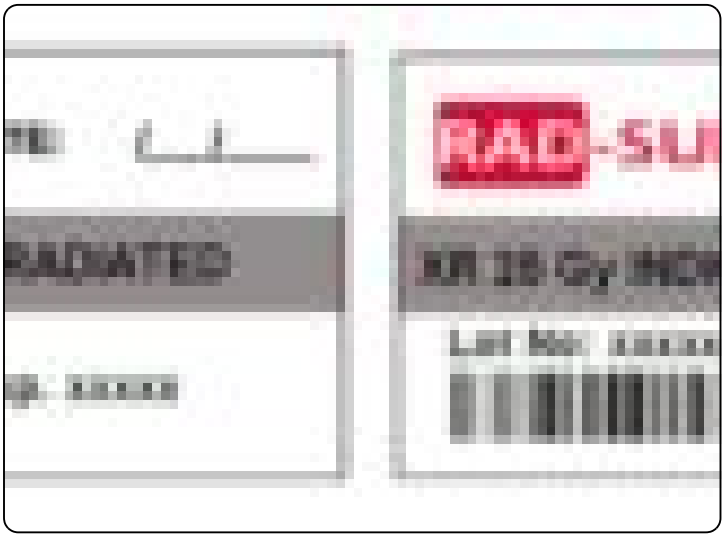
look for the NOT

Rad-Sure™ is a blood irradiation indicator that provides positive visual verification of irradiation at the minimum specified dose. Rad-Sure™ is available in two types: Gamma and X-Ray. Gamma is compatible with Cesium-137 or Cobalt-60 radiation sources and X-Ray is compatible with x-ray irradiators that utilize x-rays generated from 160kVp sources that are filtered through 0.38 mm of copper, or 150kVp sources that are filtered through 1 mm of aluminum. Manufactured from Gafchromic™ film, the world's highest resolution dosimeter, Rad-Sure is the standard for blood irradiation indicators for over 25 years.

When attached to blood products, Rad-Sure™ blood irradiation indicators show whether the blood products have been irradiated. Before a blood product and its attached indicator are irradiated, the indicator reads "NOT IRRADIATED". After the blood product and its attached indicator are irradiated, the word "NOT" is obscured and the indicator reads "IRRADIATED".

Product Features:

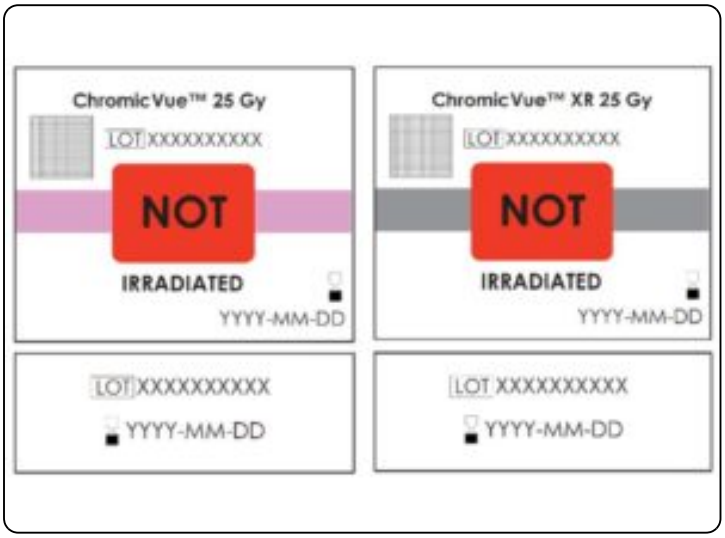
- indicators can now be stored at room temperature!
- meets cGMP requirements
- easy to use: just peel, stick, irradiate, and read!
- ISBT 128 bar-coded lot numbers
- minimum dose of 15 Gy or 25 Gy available
- Rad-Sure™ indicators adhere to AABB standards and hold the AABB seal of compliance



Rad-Sure™ ChromicVue™

Rad-Sure™ ChromicVue™ blood irradiation indicators provide all the dependable features of the traditional Rad-Sure indicators in a compact size and new dispenser box to improve your ease of use. Rad-Sure™ ChromicVue™ introduces new features to improve your workflow, such as ISBT-128 2D barcodes, and labels containing lot number and expiration date for optional use in log books and documentation purposes. Rad-Sure™ ChromicVue™'s smaller format is ideally designed for use with standard blood bags, neonatal syringes and aliquot bags.

Rad-Sure™ ChromicVue™ indicators provide positive, visual verification of irradiation at the minimum specified dose. Manufactured from Gafchromic™ film, the world's highest resolution dosimeter, Rad-Sure™ has been the standard for blood irradiation indicators for over 25 years. Before a blood product and its attached indicator are irradiated, the word "NOT" is visible and the indicator reads "NOT IRRADIATED". After irradiation, the "NOT" is obscured and the indicator reads "IRRADIATED".

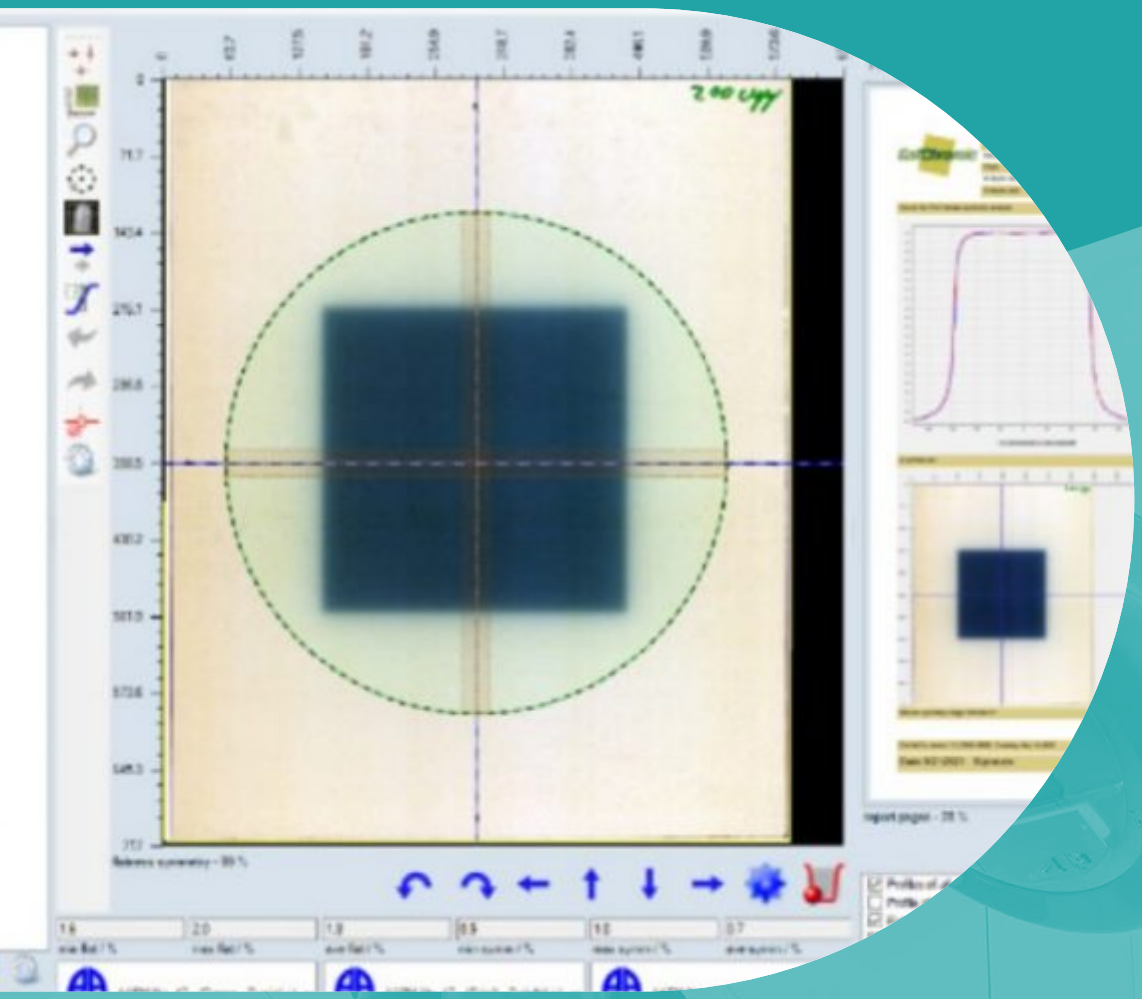


dependable features:

- film-based indicator – made with highly accurate Gafchromic™ film used in radiation oncology centers around the world
- less subjective – the product has been properly irradiated when the "NOT" is completely obscured
- indicators can be stored at room temperature
- Color-blind friendly – no need to match colors

- 30 years of reliable film technology

GAFCHROMIC FILM QA



peo MEDICAL

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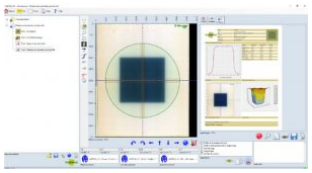
Partner Ashland

Ashland is a global leader in specialty materials, offering innovative solutions that enhance safety, precision, and patient outcomes across various medical disciplines. Their portfolio supports healthcare providers in radiation therapy, diagnostic imaging, wound care, and regenerative medicine.

Product offering

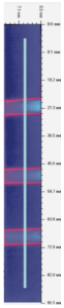
FilmQA Pro™ Software version 7 – Ashland



Gafchromic EBT-XD

Gafchromic EBT-4 Dosimetry Film – Ashland

Gafchromic LD-V1 Film



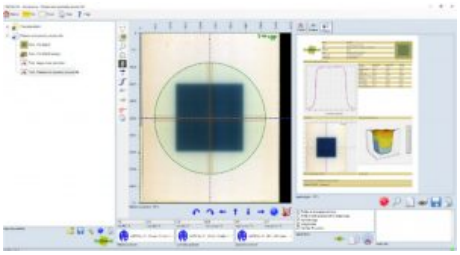
Gafchromic XR-M2 Dosimetry Film – Ashland

Gafchromic XR-CT2 Dosimetry Film – Ashland

Gafchromic XR-RV3 Dosimetry Film – Ashland

Gafchromic HD-V2 Radiochromic Film – Ashland

FilmQA Pro™ Software version 7 – Ashland



a sophisticated, quantitative analysis tool for Gafchromic™ Film

FilmQA Pro™ software is a sophisticated, quantitative analysis tool specifically designed to simplify and streamline the intensity-modulated radiation therapy quality assurance (IMRT QA). Our software is also effective for QA of SRS, SBRT and VMAT procedures. It allows you to scan or open images of exposed film and calculate the optimized dose maps.

FilmQA Pro™ software uses proprietary multi-channel dosimetry which eliminates or mitigates film and scanner artifacts by detecting whether errors are being made during scanning. In addition,, the software also has the one-scan analysis feature which combines calibration and plan verification in a single scan. The one-scan protocol requires only the patient film, a reference patch, and an unexposed patch. This protocol eliminates error sources such as interscan variability, which enables you to reduce errors to within 2 percent.

With FilmQA Pro™ software, you can get your results in minutes, post-exposure growth no longer is an issue and there is no waiting overnight for changes in the film to diminish. You can do an analysis any time you want, even at a moment’s notice. The software delivers gamma passing rates ≥ 95 percent at 2 percent at 2 mm instead of using 3 percent at 3 mm.

key features and benefits

- lateral scan correction: apply a correction to compensation for lateral artifacts that can show in the scan
- new user friendly interface with a quick start menu
- one-scan protocol: fast and efficient method to achieve dose accuracy within 2%
- triple-channel dosimetry: use three color channels to optimize accuracy of dose calculations
- accurately calibrate: an entire lot with just four strips of film using our film-specific mathematical function
- quick-start screen: easily access the module you need at start-up
- dose error recognition: ability to identify accuracy of delivered dose
- superior resolution: get 100 percent of the picture from millions of measurements instead of just 0.1 percent
- no angular dependence: shoot the film from all angles, an entire plan on a single Gafchromic™ film, and validate the plan in the same way that the patient receives it

FilmQA Pro™ Software carries a CE Mark

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Gafchromic EBT-XD

The Gafchromic EBT-XD Dosimetry Film from Ashland has been developed for the measurement of absorbed doses of ionizing radiation specifically suited for high-energy photons.

The dynamic range of this film is particularly designed for best performance in the dose range from 0.4 to 40 Gy. This makes it best suited for applications such as SRS and SBRT.

The incorporation of a yellow marker dye, when used in conjunction with an RGB film scanner and FilmQAPro™ software, the EBT-XD film enables all the benefits of multi-channel dosimetry.

Advantages

- high spatial resolution
- develops in real time without post exposure treatment
- excellent uniformity
- near tissue equivalent

Characteristics

- energy dependence: minimal response difference from 100keV into the MV range
- dynamic dose range: 0.1 Gy to 200 Gy
- optimum dose range: 0.4 Gy to 40 Gy
- stable at temperatures up to 60°C

Would you like to know more about the EBT-XD Dosimetry Film?

Download the EBT-XD datasheet or contact one of our product specialists.

Stay informed about product news, which is related to your field of expertise. Go to the PEO news sign up form and select your areas of interest.

Gafchromic EBT-4 Dosimetry Film – Ashland

Gafchromic™ EBT4 is designed for the measurement of absorbed doses of ionizing radiation. It is particularly suited for high-energy photons.

The dynamic range of
this film is designed for best performance in the dose range from 0.2 to 10 Gy, making it suitable for many applications in IMRT, VMAT and brachytherapy.

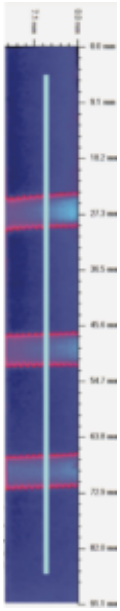
For measurement of doses substantially greater than 10 Gy EBT-XD or MD-V3 are preferred while the use of HD-V2 is indicated for still higher dose measurement.

product	format	product code
EBT4 8×10	8”x10”, 25 sheets per box	973857
EBT4P 8×10	8”x10”, 25 sheets per box	973858
EBT4 – 1417	14”x17”, 10 sheets per box	973882
EBT4 8×10 unlaminated	8”x10”, unlaminated 25 sheets per box	973860
EBT4 ballcube I	10 pr	973883
EBT4 ballcube II	10 pr	973884
EBT4 AQA	100 sheets per box	973885
EBT4 mini ballcube	10 pr	973886
EBT4 XLT	10 pr	973887

Key technical features of gafchromic™ EBT4 include:

- optimum dose range: 0.2 Gy to 10 Gy, best suited for applications such as IMRT and VMAT
- develops in real time without post-exposure treatment
- energy-dependence: minimal response difference from 100 keV into the MV range
- near tissue equivalent
- high spatial resolution – can resolve features down to 25 µm, or less
- proprietary new technology incorporating a marker dye in the active layer
  - enables non-uniformity correction by using multi-channel dosimetry
  - decreases UV/visible light sensitivity
- stable at temperatures up to 60 °C

Gafchromic LD-V1 Film



The new, low-dose Gafchromic LD-V1 film from Ashland provides superior spatial resolution to give you added confidence during your critical QA analysis. The LD-V1 replaces the XR-QA2 Gafchromic film.

LD-V1 film now includes better contrast and imaging detail. This provides instant calibration results which are easy to read with data that is even easier to understand.

The launch of this film is geared specifically as a QA tool for radiology in a processor-less environment. But the film is also suitable for security x-ray applications, non-destructive testing, and machine QA for dental equipment.

This film is available in two sizes: 8”x10” or 10”x12”. But you can cut the film sheets into different sizes and handle them in room light. One package contains 10 sheets of film.

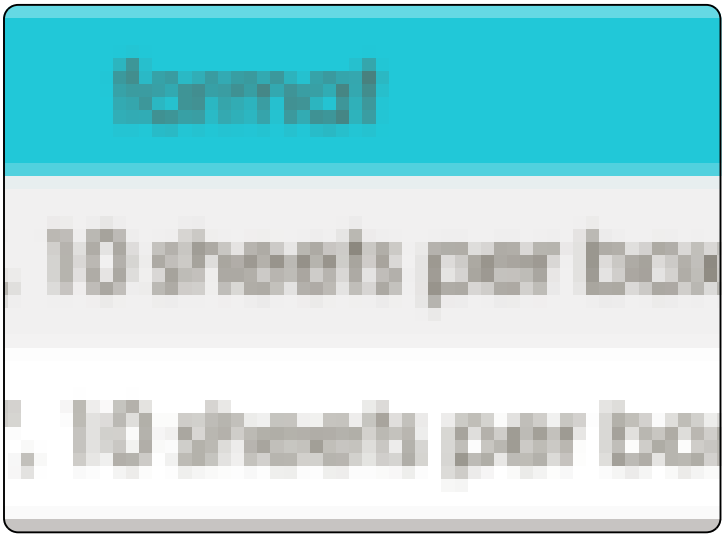
- Dose range of 2 cGY to 20 cGY
- Energy range of ~20 keV to ~200 keV.

For more information, go to our partner’s website!

Or for our other Gafchromic film, go here!

Gafchromic LD-V1 Benefits

- High spatial resolution and contrast
- Excellent tool for the processor-less environment
- Easy to use film
- Can be handled in room light
- Water resistant
- No electronic components
- U.S. FDA listed medical device



Gafchromic XR-M2 Dosimetry Film – Ashland

XRM2 Dosimetry Film is especially developed for mammography QA testing. With a single film strip you can determine the location of the radiation field, light field and the position of the detector with respect to each other.

The film has a dose range of 0,1 cGy to 20 cGy.

XRM2 DOSIMETRY FILM FEATURES

- 50 pc. in a package
- The size of a strip is 1″x3,5″ (2,54 cm x 8,89 cm)
- Instant calibration results
- Real-time self-developing
- User-friendly
- Energy range of 20 KVp to 200 KVp

Read more at our partner's website!

Do you have any questions?

Contact PEO!

Gafchromic XR-CT2 Dosimetry Film – Ashland

The Gafchromic XR-CT2 Dosimetry Film (Ashland) has been designed for the measurement of radiation beam slice width on CT scanners in real time.

Gafchromic XR-CT2 Dosimetry Film features:

- dose range 0.1 cGy to 20 cGy
- self-developing in real time
- cost effective
- excellent for CT QA
- easy to use
- high data integrity
- improved contrast
- 50 sheets per package
- size: 3/4″ x 5″

Gafchromic XR Film Ashland

Gafchromic XR-RV3 Dosimetry Film – Ashland

The Gafchromic XR-RV3 Dosimetry Film (Ashland) is used to measure and record patient skin exposure during interventional procedures where a high degree of precision in measuring skin dose is mainly not required.

Gafchromic XR-RV3 Dosimetry Film features:

- available with comparator strip
- can be used with scanner or densitometer

Gafchromic XR Film Ashland

Gafchromic HD-V2 Radiochromic Film – Ashland

Gafchromic HDV2 radiochromic film is designed for quantitative measurement of absorbed doses of high-energy photons. This self-developing film is perfect for a processorless environment.

Because this film doesn't require post-exposure processing, there are no chemicals to dispose of and you don't need a dark room.

To get the most accurate dosimetric measurement with this film, you can combine it with Ashland's FilmQAPro™ software.

This film comes in boxes of 5 pc. with sheets of 20,32 cm x 25,4 cm (8" x 10").

GAFCHROMIC HDV2 RADIOCHROMIC FILM BENEFITS

- Dynamic dose range from 10 Gy to 1.000 Gy
- Develops in real time without any post-exposure treatment
- Near tissue equivalent
- High spatial resolution
- Active coating exposed for detection of low energy photon and electron
- Marker dye in the active layer
- Stable at temperatures up to 60°C
- No dark room needed

If you want to know more about this film, take a look at our partner's website!

QA PHANTOMS

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Partner Bertin Technologies

Bertin Technologies is a global provider of advanced radiation detection and environmental monitoring solutions, specializing in handheld monitors, personal electronic dosimeters, environmental monitoring systems, and waste & recycling management technologies. Their instruments are designed to meet the rigorous demands of nuclear facilities, emergency response teams, and environmental agencies.

Product offering

Model 551 Accreditation Phantom for Uniformity – CIRS

Model 057A Triple Modality 3D Abdominal Phantom – CIRS

Model 040GSE Multi-Purpose, Multi-Tissue Ultrasound Phantom – CIRS

Models 014A, 014AD, 014B, 014F Mammography Phototimer Consistency Testing Slabs – CIRS

Model 020 BR3D Breast Imaging Phantom – CIRS

Diagnostic Imaging › QA phantoms

Model 551 Accreditation Phantom for Uniformity – CIRS

A continuous QC program identifies problems before they impact the diagnostic value of ultrasound exams and assures equipment is functioning properly. Research has demonstrated that the most common failure in the ultrasound imaging system is the transducer as they are easily damaged by stress, dropping and kinked cables1. Accreditation programs now recommend all scanners and all transducers be tested quarterly and must be tested at least semiannually by performing an image uniformity and artifact survey2.

The CIRS Model 551, Accreditation Phantom for Uniformity, aids appropriately trained personnel in identifying the presence of lateral and/or axial streaks, i.e. artifacts, on any ultrasound transducer. Presence of artifacts is an indication of transducer damage and triggers corrective action.

The phantom consists of a uniform block of Z-SkinTM that is elastic enough to conform to any shape transducer. Z-Skin is durable enough to withstand the probe pressure to maintain coupling with all the elements of even the tightest curvilinear arrays.

1. American College of Radiology. (2013, October 28). Ultrasound Accreditation Program Requirements. Retrieved from http://www.acr.org/~/media/ACR/Documents/Accreditation/US/Requirements.pdf

2. Hangiandreou NJ, Stekel SF, Tradup DJ, Gorny KR, King DM. Four-year experience with a clinical ultrasound quality control program. Ultrasound Med Biol. 2011;37(8):1350-7.

Features

- Simple, compact design makes phantom easy to transport and store
- Cost-effective solution to fulfill accreditation Routine QC Program requirements
- Durable materials for extended phantom life
- Soft phantom material conforms to shape of most ultrasound transducers

Contact our product specialist or download the datasheet.

Diagnostic Imaging › QA phantoms

Model 057A Triple Modality 3D Abdominal Phantom – CIRS

The CIRS Triple Modality 3D Abdominal Phantom is constructed of a self-healing formulation of Zerdine®(1) that allows multiple biopsy insertions with minimal needle tracking, and is ideal for demonstrating image-guided navigation technologies.

Abdominal imaging is useful for diagnosing disease and monitoring treatments. The Model 057A is representative of a small adult abdomen and can be imaged under CT, MR and ultrasound. This feature makes the phantom a useful tool for applications such as image fusion studies; imaging protocol developments; scan technique training; and system testing, validation and demonstration.

The Model 057A simulates the abdomen from approximately the thorax vertebrae (T9/T10) to the lumbar vertebrae (L2/L3) using simplified anthropomorphic geometry. The materials provide contrast between the structures under CT, MR and ultrasound. The solid polymer background gel will not leak when punctured.*

Internal structures include the liver, the portal vein, two partial kidneys, a partial lung, the abdominal aorta, the vena cava, a simulated spine and six ribs. The liver has six lesions and the kidneys each have one lesion. A muscle layer and outside fat layer surround these structures and plastic end caps make the phantom durable enough for extended scanning. Blood vessels have CT contrast added to provide enhanced auto registration in image fusion applications

The Phantom includes a foam lined hard carry case. To accommodate image fusion techniques, CIRS can offer value-added options and services such as phantom specific CMM, reference CT or MRI data sets, attachment of customer specific registration devices and inclusion of special point markers.

Features

- Demonstrate CT, ultrasound and MRI scan techniques
- Assess image fusion algorithms
- Test new equipment
- Validate automated biopsy systems
- Optimize imaging protocols
- Improve performance of freehand abdominal biopsies

Contact our product specialist or download the datasheet.

Model 040GSE Multi-Purpose, Multi-Tissue Ultrasound Phantom – CIRS

The CIRS Model 040GSE Multi-Purpose, Multi-Tissue Ultrasound Phantom is the most complete solution available for performance and quality testing. It contains nine performance measurements, including grey scale targets, anechoic stepped masses and elasticity targets.

This is the only QA phantom on the market that provides both elasticity targets and all the standard B-mode imaging test objects.

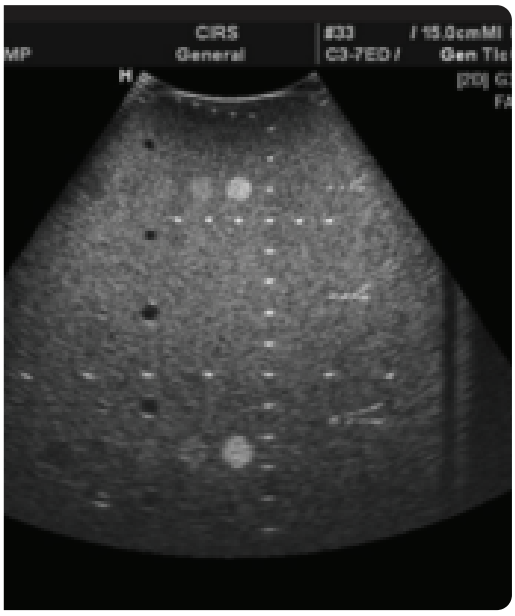
FEATURES

The unique dual attenuation of the background gel allows for evaluation of transducers that range from 2 MHz – 15 MHz. A removable water well and endocavity cover extends the use of the phantom by allowing evaluation of all transducer configurations: linear, curvilinear and intercavity.

All of CIRS' ultrasound QA phantoms come standard with a robust housing, rugged carry case, 48-month warranty, and a userguide.

BENEFITS

- Unique dual attentuation design allows testing on low frequency abdominal probes up to 5 MHz and high frequency probes to 15 MHz and higher.
- Detachable water wells allow for testing curvilinear and endocavity probes.
- Only general purpose QA phantom on the market with elasticity.
- Ensure over ten years of reliable use through reinspection and repair services.



KEY TESTS WITH MODEL 040GSE

- Uniformity
- Depth of penetration

- Beam profile/ Focal zone/ Lateral response width
- Vertical distance measurement
- Horizontal distance measurement
- Axial and lateral resolution
- Elevational resolution
- Contrast resolution
- Grayscale contrast sensitivity
- Elasticity sensitivity
- Dead zone assessment

If you want more information, go to our partner’s site!

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Diagnostic Imaging › QA phantoms

Models 014A, 014AD, 014B, 014F Mammography Phototimer Consistency Testing Slabs – CIRS

CIRS Phototimer Consistency Testing Slabs / Test Tool are designed for precise assessment of AEC system performance in accordance with American College of Radiology and MQSA recommendations. BR-12 (47% glandular / 53% adipose) is most commonly used but other glandular equivalencies are available. Unlike acrylic, these testing slabs are manufactured with very tight thickness tolerances and more accurately simulate real breast tissue over the range of energies used in mammography.

Models 014A, 014AD, 014B, 014F Mammography Phototimer Consistency Testing Slabs features

- assess AEC system performance
- comply with ACR & MQSA recommendations
- available in multiple configurations

Contact one of our product specialists.

Model 020 BR3D Breast Imaging Phantom – CIRS

The Model 020 BR3D Breast Imaging Phantom has been designed to assess discoverability of different size lesions within a tissue equivalent, heterogeneous, complex background. This phantom delivers more realistic challenges for standard screen and FFDM mammography systems as well as Breast Computed Tomography and Tomosynthesis.

Model 020 BR3D Breast Imaging Phantom features:

- complex background provides greater challenge for target detection
- slabs with different gland-to-adipose ratios by weight are available by request
- tests Breast Computed Tomography and Tomosynthesis
- more representative than standard homogenous phantoms

Read more about the Model 020 BR3D Breast Imaging Phantom on the CIRS website

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Partner Sun Nuclear Corporation

Sun Nuclear is a leading provider of comprehensive Quality Management solutions for radiation therapy and diagnostic imaging. Their portfolio encompasses positioning systems, dosimetry tools, QA phantoms, detectors, dose rate monitoring devices, analysis software, and training phantoms. These solutions are designed to support medical professionals in ensuring accurate, safe, and efficient patient care.

Product offering

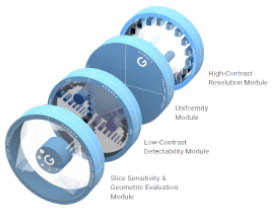
Elasticity QA Phantom (model 049) – CIRS

Image-Guided Abdominal Biopsy Phantom (model 071B) – CIRS

Model 1425 – Doppler Flow System – Sun Nuclear

Model 1430 – Mini-Doppler Flow System – Sun Nuclear

Advanced iqModules™ – Sun Nuclear



Mercury 4.0 Phantom – Sun Nuclear

Model 164A – Stereotactic Breast Biopsy Phantom – Sun Nuclear

Model 083 – Soft Carrying Case – Sun Nuclear

Model 711-HN ATOM Max Dental & Diagnostic Head Phantom – CIRS

Model 404 – Precision Small Parts Grey Scale Phantoms – Sun Nuclear

Model 405 – Precision Resolution Grey Scale Phantom – Sun Nuclear

Model 406 – Dual Attenuation Phantom – Sun Nuclear

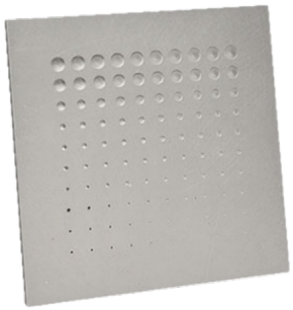
Model 408 – Spherical Lesion Phantom – Sun Nuclear

Model 416 – Ultrasound Transducer Evaluation Device UTED – Sun Nuclear

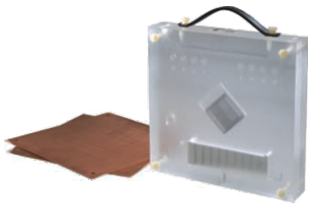
Model 411 – LE Tissue Mimicking QC Phantom – Sun Nuclear

Model 410 – Multi-Purpose Accreditation Phantom – Sun Nuclear

Model 1151 – Radiographic Contrast / Detail Phantom – Sun Nuclear

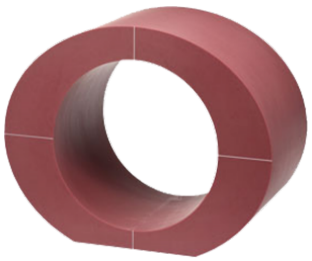


Model 170NJ – Radiographic Survey Phantom – Sun Nuclear



Model 610 – Neonatal Chest Phantom – Sun Nuclear

Model 464-Ring – CT Phantom Extension – Sun Nuclear



CT ACR 464 Phantom – Sun Nuclear

Model 464 – ACR CT Accreditation Extension Plates – Sun Nuclear

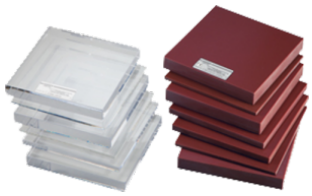
Model 183 – Routine Mammographic QC Kit – Sun Nuclear

Model 182M – Mammographic QC Kit – Sun Nuclear

Model 179 – Artifact Identification Phantom – Sun Nuclear

Model 118 – Mammographic Aluminum Stepwedge – Sun Nuclear

Model 159A / 159A-BR – Mammographic Phototimer Consistency Tool – Sun Nuclear



Model 150K – Mammographic DCF Test Tool – Sun Nuclear

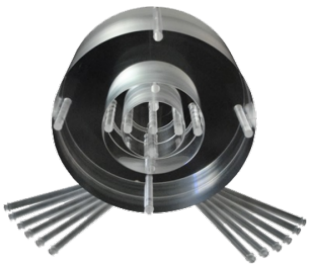
Model 429 – Ultrasound Biopsy Phantom – Sun Nuclear

Model 156D – Stereotactic Mammographic Accreditation Phantom – Sun Nuclear

Model 157A – Mammographic Film/Screen Contact Test Tool – Sun Nuclear

Model 156 – Mammographic Accreditation Phantom – Sun Nuclear

Model 468 – CT Dose Index Phantom – Sun Nuclear



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Diagnostic Imaging › QA phantoms

Elasticity QA Phantom (model 049) – CIRS

The Elasticity QA Phantom (model 049 & 049A) is a tool you can use for both shear wave and compression elastopraphy. These models are the only phantoms commercially available for sonoelastography quality assurance. The phantoms contain targets of known stiffness relative to the background material and range in stiffness, diameter and depth.

Both phantoms come standard with a four-year warranty and carry case.

The Model 049 is a basic QA phantom as it contains two sizes of spheres positioned at two different depths. At each depth there are two spheres that are softer than the background and two that are harder than the background.

Model 049A has a broader range of target sizes than the 049. This phantom has stepped mass targets instead of spheres. Each stepped mass consists of six diameters so that you can evaluate the ability to visualize targets that are located at the same depth and have the same relative stiffness but vary in diameter.

Both models are housed in the same size container as the original Model 049.

ELASTICITY QA PHANTOM FEATURES

- Four types of lesions with discrete elastic moduli
- Compatible with both shear wave and compression elastography
- Customized versions available for magnetic resonance elastography
- Ensure over ten years of reliable use through reinspection and repair service

The phantoms are suitable for determining dynamic range, checking system performance over time, training and demonstrating, and research and development.

If you want to read more about these models, take a look at our partner’s website!

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Diagnostic Imaging › QA phantoms

Image-Guided Abdominal Biopsy Phantom (model 071B) – CIRS

The Image-Guided Abdominal Biopsy Phantom is a simplified abdominal phantom. It's suitable for training and demonstrating image-guided needle biopsy navigation tools or procedures that require a constant visual reference for needle placement. The phantom allows many uses over time because of the background gel minimizes needle tracks when punctured.

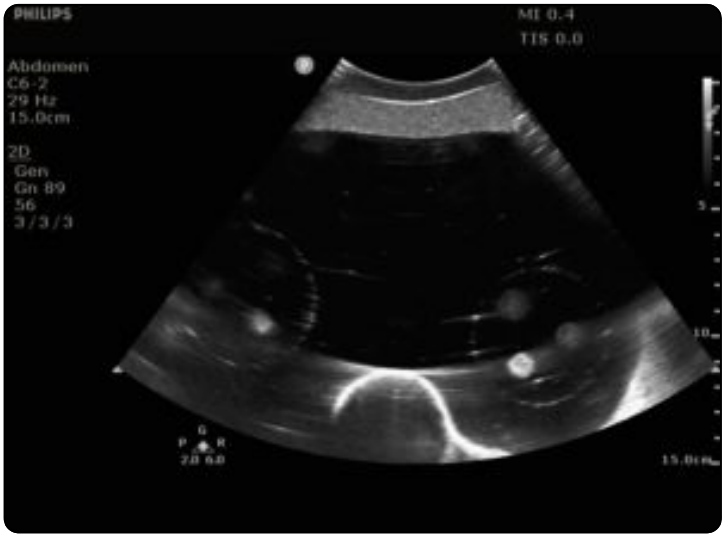
The phantom contains 12 lesions, 5-12 mm in diameter, positioned in groups of three in consistent locations within the phantom. It also includes simulated spine and ribs, and an "H" marker within the spine to assist in determining the head side within a CT-image. You can see the lesions and spine under ultrasound, CT and MRI. The solid polymer gel background is anechoic and will also not leak when it is punctured.

The phantom also includes a foam lined hard carry case and it's useful in multiple fields. The phantom is perfect for CT, Ultrasound and MRI, live scanning and biopsy training.

IMAGE-GUIDED ABDOMINAL BIOPSY PHANTOM FEATURES

- Improve performance of freehand abdominal biopsies
- Minimal needle tracking- Z-skin fat layer and softer gel provide better self-healing properties
- Validate automated biopsy systems
- Suitable for CT, MRI and Ultrasound

If you want to read more about this phantom, take a look ar our partner's website!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TIS 0.0
Abdomen
C6-2
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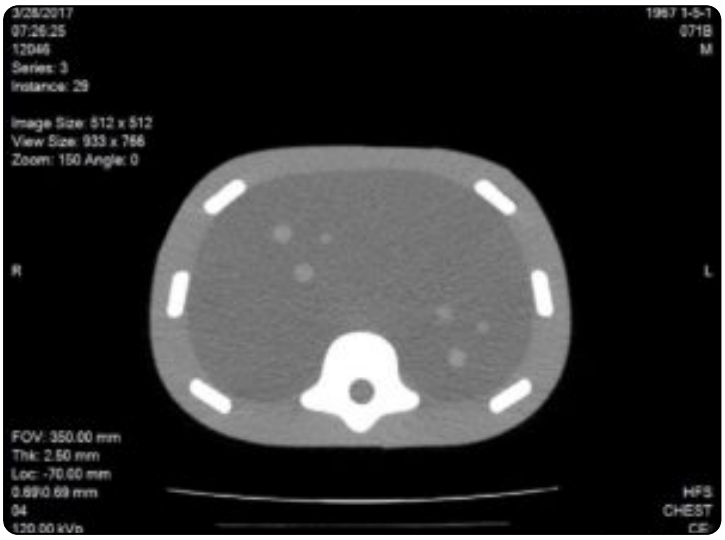
15.0cm
2D
Gen
Gn 89
56
3/3/3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1967 1-5-1
071B
M
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L
FOV: 350.00 mm
Thk: 2.50 mm
Loc: -70.00 mm
HFS
CHEST

Model 1425 – Doppler Flow System – Sun Nuclear

The Doppler Flow System from Sun Nuclear (formerly Gammex) tests both Doppler and B-mode ultrasound systems in a single unit. The compact, easy to store and transport designed system combines the flow system, phantom and electronic flow controller into a single unit. Scanner selection, quality control testing, training and research can all be performed using this multi-faceted ultrasound tool. A wide range of targets and vessels are included in the unit.

Doppler Flow System features:

- the Choice of attenuations of 0.5 or 0.7 dB/cm/MHz
- combines low echo matrix with line reflectors and anechoic cyst targets at 2, 4 and 6 mm depths
- two 5mm vessels in the system adhere to FDA Doppler sensitivity recommendations.
- flow controller with a range of 1 to 12.5 ml/sec
- 5 preset pulse flow patterns

Do you want to know more about the Doppler Flow System?

If you want to continue your search for additional information on this product try this link.

Diagnostic Imaging › QA phantoms

Model 1430 – Mini-Doppler Flow System – Sun Nuclear

The Doppler Flow System tests both Doppler and B-mode ultrasound systems in a single unit. The compact, easy to store and transport designed system combines the flow system, phantom and electronic flow controller into a single unit. Scanner selection, quality control testing, training and research can all be performed using this multi-faceted ultrasound tool. A wide range of targets and vessels are included in the unit.

Mini-Doppler Flow System features:

- the Choice of attenuations of 0.5 or 0.7 dB/cm/MHz
- includes 404GS LE components with Grey Scale targets
- combines low echo matrix with line reflectors and anechoic cyst targets at 2, 4 and 6 mm depths
- two 4 mm vessels in the system adhere to FDA Doppler sensitivity recommendations.
- flow controller with a range of 0 to 10 ml/sec
- 8 preset pulse rates

Do you want to know more about the Mini-Doppler Flow System?

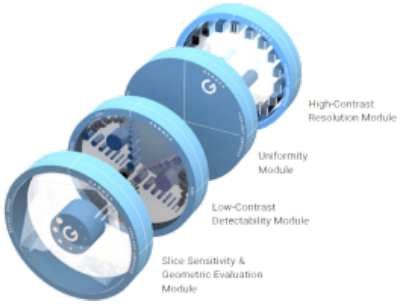
If you want to continue your search for additional information on this product try this link.

Diagnostic Imaging › QA phantoms

Advanced iqModules™ – Sun Nuclear

Expanded Image Quality CT QA

Perform robust image quality testing of advanced CT systems with Advanced iqModules from Sun Nuclear (formerly Gammex). This set of 4 modules provides comprehensive testing of high-contrast resolution, low-contrast detectability, slice sensitivity, geometric evaluation, and uniformity.



Unmatched Image Quality Testing

Versatile and unique, the Advanced iqModules offer resolution up to 32 lp/cm, the widest range of test objects to evaluate low contrast detectability, and a broad range of methods to evaluate Slice Sensitivity.

Modular CT QA Support

Combine modules with the CT ACR 464 Phantom for expanded, independent CT QA. Or, combine them with the Advanced Electron Density Phantom or the Multi-Energy Phantom, to create a robust system for testing image quality and other parameters such as dose distributions concurrent with evaluating Multi-Energy CT performance and performing HU calibrations.

Low-Contrast Detectability Module

Use this module to test the low-contrast detectability of the most demanding CT scanners.

- Test performance across scanners and protocols with 3 different contrast levels

0.3%, 0.6%, and 1.0% (3 HU, 6 HU, and 10 HU)

- Ensure robustness against noise with multiple contrast objects

Sized from 1.5 to 25 mm with two of each size

High-Contrast Resolution Module

Use this module to expand your CT ACR 464 testing.

- Includes all resolutions from the CT ACR 464 Phantom, plus high resolution up to 32 lp/cm
- Large bar patterns offer easy visualization and analysis
- Zinc high-contrast material provides visibility without over-ranging scanners

Slice Sensitivity & Geometric Evaluation Module

Use this module to validate slice thickness, slice sensitivity profile, and system geometry.

- Measure slice thickness and slice sensitivity profile with an opposed pair of wire ramps and 2 opposed pairs of bead ramps
- Calculate Modulation Transfer Function with one-off vertical wire
- Check geometric accuracy with 8 acrylic spheres
- Perform MTF measurements with BBs of two different sizes

Uniformity Module

Use this module to assess CT number uniformity.

- Measure uniformity and noise
- Measure distance and calibrate pixel size using 2 embedded BBs spaced 100 mm apart
- Calculate MTF, NPS, and other noise-related metrics
- Doubles as an extension plate for use with the CT ACR 464 Phantom and other Advanced iqModules

Read the full specifications, benefits and scope in datasheet.

Links

Advanced Electron Density Phantom link – https://www.sunnuclear.com/products/advanced-electron-density-phantom

CT ACR-464 Phantom link – https://www.sunnuclear.com/products/ct-acr-464-phantom

RapidCHECK Diagnostic QA Software – https://www.sunnuclear.com/products/rapidcheck-software

View Sun Nuclear website: https://www.sunnuclear.com/products/multi-energy-ct-phantom

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Diagnostic Imaging › QA phantoms

Mercury 4.0 Phantom – Sun Nuclear

This Advanced CT Performance Assessment Phantom makes it possible to characterize advanced CT features, including Automatic Exposure Control and Iterative Reconstruction, to support protocol optimization and proper dose management for your patients.

Characterization for Effective Dose Management

The Mercury 4.0 Phantom addresses performance and effectiveness of Automatic Exposure Control / Tube Current Modulation, and evaluates image quality for Iterative Reconstruction.

TG-233 Compliance

Meet AAPM Task Group 233 requirements for performance evaluation of CT systems.

Advanced CT Metrics

Collect and analyze data for advanced CT testing recommended by AAPM Task Group 233:

- Automatic Exposure Control
- Noise Power Spectrum
- Modulation Transfer Function & Task Transfer Function
- Detectability (d’)
- Cone-beam artifacts
- Superior-Inferior resolution

If you want to know more, take a look at our partner’s website!

Model 164A – Stereotactic Breast Biopsy Phantom – Sun Nuclear

The Stereotactic Breast Biopsy Phantom form Sun Nuclear (formerly Gammex) is designed to be used as a training phantom for performing biopsy procedures. It provides a good representation of breast tissue.

Multiple radiopaque lesions are impeded in the phantom to permit multiple uses of the phantom by different personnel.

Model 164A Stereotactic Breast Biopsy Phantom features:

- made of clear gel encased in a soft vinyl for easy compression and a skin-like resistance to needle insertion
- embedded in the gel are radiopaque lesions ranging in size for practicing core biopsies
- liquid dye filled lesions allow for the practice of fine needle aspiration
- compressible within a biopsy instrument

If you want to continue your search for additional information on this product try this link.

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Model 083 – Soft Carrying Case – Sun Nuclear

This Soft Carrying Case is designed to protect and transport the Gammex/ Sun Nuclear Ultrasound phantom that is placed in it. It is compact and easy to clean if it becomes soiled.

The case can be used with any of the Gammex/ Sun Nuclear Ultrasound phantoms except the Doppler Flow System (1425A LE) or the (1430LE).

Soft Carrying Case features:

- shoulder strap for easy carrying
- foam-lined for protection of the phantom and other contents
- specifically designed for holding the Gammex Ultrasound phantoms
- made of durable material for long lasting protection of the phantom

Model 711-HN ATOM Max Dental & Diagnostic Head Phantom – CIRS

The Model 711-HN ATOM Max Dental & Diagnostic Head Phantom is a standard of reference for diagnostic radiology of the head. The phantom has been developed to assist clinical and technical staff in the monitoring, selection, verification and training of scanning parameters common to most radiological procedures requiring fine anatomical details.

Model 711-HN ATOM Max Dental & Diagnostic Head Phantom features:

- tissue Equivalent from 50 keV to 25 MeV
- carrying case included
- includes detailed anatomical features
- Frankfurt plane identified to ensure proper alignment
- positioning stand with six degrees-of-freedom
- easy to set up and use

Read more about the Model 711-HN ATOM Max Dental & Diagnostic Head Phantom on the CIRS website

Model 404 – Precision Small Parts Grey Scale Phantoms – Sun Nuclear

The 404GS LE precision Small Parts Grey Scale Phantom provides advanced technology for measuring image quality of small parts and intra-cavity ultrasound scanning systems. The phantom also contains grey scale parts for additional measurement capability.

The 404 LE has the same general target layout and specifications as the 404GS LE but it does not include grey scale targets.

Both Sun Nuclear phantoms incorporate the latest Gammex Tissue Mimicking gel technology to provide a smoother background texture than what is provided by conventional tissue mimicking gels.

The convertible water dam permits easy changeover for its use or non-use. It is included on both the 404GS LE and the 404 LE.

Precision Small Parts Grey Scale Phantoms features:

- the phantom utilizes the unique Tissue Mimicking gel of Gammex
- combination of anechoic cyst, grey scale and pin targets to permit a wide range of testing.
- convertible water dam
- measure to depths of up to 9 cm
- varying sizes and depths of each type of target
- resolution patterns and all vertical and horizontal targets are made of 0.1 mm nylon fibers
- low scatter cysts of 1, 2, 4 and 7 mm diameters to better evaluate system noise and distortion

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Model 405 – Precision Resolution Grey Scale Phantom – Sun Nuclear

The Precision Resolution Grey Scale Phantom is designed to work with high resolution ultrasound systems.

Sun Nuclear's 405GSX LE incorporates the latest Gammex Tissue Mimicking gel technology to provide a smoother background texture than what is provided by conventional tissue mimicking gels. The phantom contains all of the quality indicators for performing a wide range of evaluations. Grey scale targets are included in the phantom.

The convertible water dam permits easy changeover for its use or non-use.

Precision Resolution Grey Scale Phantom features:

- the phantom utilizes the unique Tissue Mimicking gel of Gammex
- combination of anechoic cyst, grey scale and pin targets to permit a wide range of testing.
- convertible water dam
- reference markers within the phantom permits exact alignment of transducer each time testing is performed
- measure to depths of up to 16 cm
- varying sizes and depths of each type of target

Model 406 – Dual Attenuation Phantom – Sun Nuclear

The Sun Nuclear (formerly Ga Dual Attenuation Phantom is essentially 2 phantoms in 1. The phantom permits quality control tests over a wide range of frequencies.

The 406 LE is a highly effective instrument for demonstrating superior image quality while challenging high performance ultrasound systems. The phantom provides a comprehensive profile of the scanner's overall image quality.

Dual Attenuation Phantom features:

- contains both 0.5 and 0.7 dB/cm/MHz attenuations in a side-by-side configuration
- the phantom uses the Gammex Tissue Mimicking gel with a smoother background texture.
- the Phantom uses a composite film scanning surface with improved transmission properties
- the phantom has target depths to 16 cm deep
- resolution patterns and all vertical and horizontal targets are constructed of 0.1 mm nylon fiber.
- three sets of axial resolution targets.
- scatter-free cylinders of 2, 4 and 6 mm diameter that mimick blood vessels

Do you want to know more about the Dual Attenuation Phantom?

If you want to continue your search for additional information on this product try this link.

Diagnostic Imaging › QA phantoms

Model 408 – Spherical Lesion Phantom – Sun Nuclear

This Spherical Lesion Phantom from Sun Nuclear (formerly Gammex) is used to test the resolution of Ultrasound scanners. It tests in 3 dimensions: axial, lateral and elevational.

The phantom contains both 2mm and 4mm diameter tissue mimicking spherical lesions which lie in a single plane at the center of the phantom. Axial, lateral and elevational resolution are accouted for simultateously and equally for all types of ultrasound systems and configurations.

Spherical Lesion Phantom features:

- contains both 2mm and 4mm diameter tissue mimicking spherical lesions
- the 2mm section contains 105 anechoic spheres at 0.5cm depther intervals
- the 4mm section contains 211 anechoic spheres at 0.75 depth intervals
- tissue Mimicking gel used provides smoother background texture
- lesions produced with negligible echogenicity while producing no distal enhancement or shadowing
- TM gel optimized for use with tissue harmonics imaging technology
- composite film scanning surface provides improved transmission properties permitting more of the ultrasonic beam to be transmitted and received.

Do you want to know more about the Spherical Lesion Phantom?

If you want to continue your search for additional information on this product try this link.

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Model 416 – Ultrasound Transducer Evaluation Device UTED – Sun Nuclear

The Ultrasound Transducer Evaluation Device UTED provides an EASY, FAST & ECONOMICAL way to test your transducer elements.

Ultrasound Transducer Evaluation Device UTED features:

- silicone-based phantom
- varying surfaces and chambers
- compact

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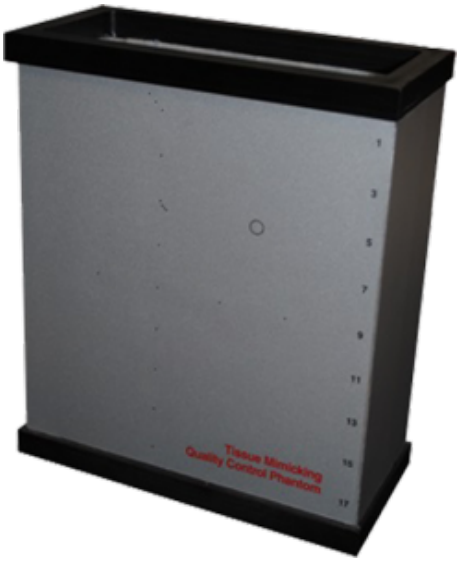
Model 411 – LE Tissue Mimicking QC Phantom – Sun Nuclear



The Tissue Mimicking QC Phantom 411 LE is designed to meet the needs of the small ultrasound lab. This phantom provides a standard of quality assurance required for routine testing of ultrasound scanning systems.

411 LE Tissue Mimicking QC Phantom features:

- the phantom utilizes the unique Tissue Mimicking gel of Gammex
- one mid-depth axial resolution target at 6 cm with pins spaced at 0.5, 1 and 2 mm.
- single 6 mm diameter anechoic cyst at 5 cm
- all pin targets are constructed of 0.374 mm nylon fibers

Model 410 – Multi-Purpose Accreditation Phantom – Sun Nuclear

The 410 family of Multi-Purpose Accreditation Phantom lets you pick and choose what level of testing is right for your quality assurance program. All 410 phantoms will allow you to evaluate uniformity and artifacts, geometric accuracy and system sensitivity. This phantom provides a standard of quality assurance required for routine testing of ultrasound scanning systems.

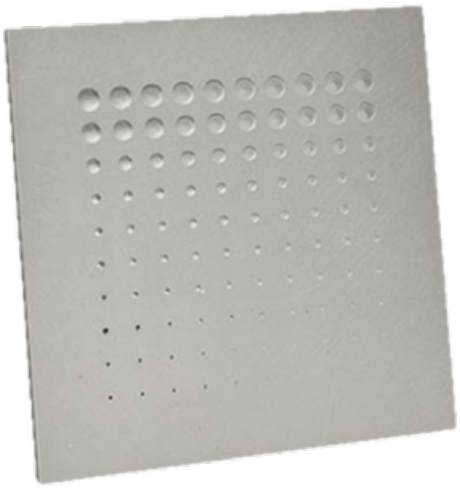
Multi-Purpose Accreditation Phantom features:

- the phantom utilizes the unique Tissue Mimicking gel of Gammex
- multiple scanning surfaces to easily test all types of transducer shapes
- uniformity Assessments
- sensitivity Assessment Dead zone Assessments
- harmonic Imaging

Do you want to know more about the Multi-Purpose Accreditation Phantom?

If you want to continue your search for additional information on this product try this link.

Model 1151 – Radiographic Contrast / Detail Phantom – Sun Nuclear



This Radiographic Contrast / Detail Phantom from Sun Nuclear (formerly Gammex) is used to determine the threshold contrast characteristics and to monitor performance of a radiographic or fluroscopic system.

The phantom is an aluminum plate with a matrix of holes. All of the holes in a given row have a constant depth. All of the holes in a given column have a constant diameter. From this a 10 point curve is constructed by observing the shallowest depth hole that can be seen for each hole diameter.

Radiographic Contrast / Detail Phantom features:

- aluminium construction
- easy to use tool
- easy to transport

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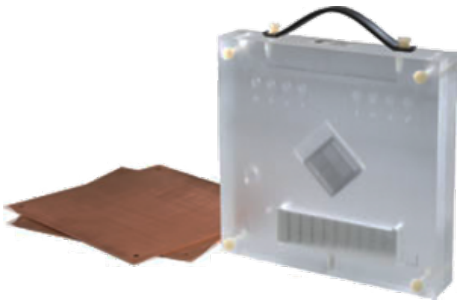
Model 170NJ – Radiographic Survey Phantom – Sun Nuclear



The Sun Nuclear (formerly Gammex) 170NJ phantom provides a simple and reproducible test tool for interfacility surveys and intra-department comparison of radiographic systems.

For routine quality control, the phantom images provide a rapid assessment of high contrast resolution, low contrast detectability, radiographic exposure consistency as well as radiation light-field alignment and collimation accuracy.

Radiographic Survey Phantom features:

- designed to optimize portability and ease of use
- designed for use in 3 ranges of clincal settings:
  - 60 kVp
  - 75 kVp
  - 120 kVp
- each phantom is equipped with a carrying strap, tripod mounting assembly and built-in levels for quick set up and orientation in a variety of clinical settings
- includes 2 thicknesses of Copper plate.

Diagnostic Imaging › QA phantoms

Model 610 – Neonatal Chest Phantom – Sun Nuclear

The Gammex 610 Neonatal Chest Phantom is designed for routine quality assurance monitoring of computed and digital radiography systems.

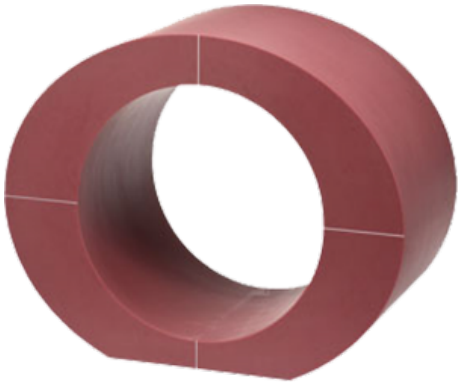
The phantom replicates both the anatomic structure and the tissue attenuation characteristics of a real neonate. The 610 phantom can be imaged using clinical protocols, requiring in a test of the entire imaging chain, including image processing parameters.

The phantom is the first anthropomorphic neonatal phantom that adequately represents a 1-2 Kg neonate in its transmission characteristics, histogram, physical size and structure.

Neonatal Chest Phantom features:

- accurate representation of neonate in transmission characteristics.
- interchangeable lung insert pieces that permit imaging examination of pneumothorax and hyaline membrane conditions
- compact size
- composed of Solid Water material
- light weight custom carrying case

Model 464-Ring – CT Phantom Extension – Sun Nuclear



Users of Sun Nuclear's (formerly Gammex) 464 CT phantom frequently want a better indication of the scanner's performance with a phantom that more accurately mimics a torso. The optional 464-Ring torso adapter permits the use of the 464 Accreditation in this type of application.

The 464 phantom can easily be inserted into the 464-Ring adapter to permit quick imaging in these situations. Users gain the advantage of being able to check the Quality Assurance on 16 different parameters with an anthropomorphic testing phantom in additional to other QA applications they may be required to perform, thus saving money that would otherwise be required for purchase of an entirely new phantom.

The Torso adapter is not a requirement for use in any Quality Assurance testing program.

CT Phantom Extension features:

- Solid Water construction
- made of multiple modules and shaped to better mimic a torso
- white scribed markings help ensure proper alignment
- designed to work exclusively with the 464 CT Phantom

Do you want to know more about the CT Phantom Extension?

If you want to continue your search for additional information on this product try this link.

Diagnostic Imaging › QA phantoms

CT ACR 464 Phantom – Sun Nuclear

The ACR CT Accreditation Phantom from Sun Nuclear (Gammex) is designed to be an integral part of the American College of Radiology (ACR) CT Accreditation Program. This voluntary program provides physicians with an opportunity for a comprehensive peer review of their CT facility, personnel qualifications, image quality and quality assurance programs.

The phantom can be used for initial QA assessment and routine monthly QA testing to help ensure that patients are receiving the lowest possible CT dose.

The Gammex ACR CT phantom is the only phantom authorized for use in the ACR CT Accreditation Program. Gammex submits the phantoms to rigorous quality control testing standards, as outlined by ACR, to assure users of the high level of performance and intergrity of each phantom.

ACR CT Accreditation Phantom features:

- designed to meet specifications of ACR for CT accreditation
- Solid Water construction
- made of 4 modules designed to measure a wide range of scanner parameters
- white scribed markings on the axial coronal and sagittal axis help ensure proper alignment
- measure
  - positioning
  - CT number accuracy
  - alignment
  - slice thickness
  - low contrast resolution
  - CT number uniformity
  - high contrast resolution

Do you want to know more about the ACR CT Accreditation Phantom?

If you want to continue your search for additional information on this product try this link.

Links

RapidCHECK Diagnostic QA Software – https://www.sunnuclear.com/products/rapidcheck-software

Advanced iq modules – https://www.sunnuclear.com/products/advanced-iqmodules

Multi Energy CT Phantom – https://www.sunnuclear.com/products/multi-energy-ct-phantom

View Sun Nuclear website: https://www.sunnuclear.com/products

Model 464 – ACR CT Accreditation Extension Plates – Sun Nuclear

Accurately represent scatter effects from widebeam CT scanners with the ACR 464 extension plates from Sun Nuclear (Gammex). Made from identical solid water materials, these extension plates allow images to begin and end in the same material to eliminate artifacts that may be introduced by scanning in air.

ACR CT Accreditation Extension Plates features:

- this kit includes two Extension Plates with an adjustable stand to accurately represent scatter effects from wide-beam CT scans. The extension plates allow images to begin and end in the same material to eliminate artifacts that may be introduced by scanning in air.
- Solid Water construction
- designed to work exclusively with the 464 CT Phantom

Do you want to know more about the ACR CT Accreditation Extension Plates?

If you want to continue your search for additional information on this product try this link.

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Model 183 – Routine Mammographic QC Kit – Sun Nuclear

The Sun Nuclear (formerly Gammex) 183 Routine Mammographic QC Kit contains all the tools, instructions, and data recording forms needed for a film-screen mammography program that meets MQSA requirements.

The instruments evaluate image quality, compression force, film-screen contact, processor performance and film hypo retention.

Model 183 Routine Mammographic QC Kit features:

- multiple instruments and tools for performing a wide range of tests
- rugged carrying case
- ACR Mammography Accreditation phantom is included
- ACR Mammographic Quality Control Manual included

Diagnostic Imaging › QA phantoms

Model 182M – Mammographic QC Kit – Sun Nuclear

Quality control provides the necessary assurance that your images contain all the information possible for the delivered dose. Sun Nuclear's (formerly Gammex) 182M Mammographic QC Kit can be used at every type of mammography facility, from small clinics to large medical centers.

Each kit is complete and will provide you with the tools used to perform essential tests.

Model 182M Mammographic QC Kit features:

- image quality
- film/screen contact
- kVp accuracy
- automatic exposure control reproducibility
- timer accuracy
- half value layer
- focal spot size
- output reproducibility and linearity

Model 179 – Artifact Identification Phantom – Sun Nuclear

Sun Nuclear’s (formerly Gammex) 179 Artifact Identification Phantom is a full field device that allows for a grey film to be produced when the phantom is imaged. This will indicate any artifacts that may be caused by a mammographic system’s grid or filters.

Model 179 Artifact Identification Phantom features:

- acrylic design

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Model 118 – Mammographic Aluminum Stepwedge – Sun Nuclear

Sun Nuclear’s (formerly Gammex) 118 Mammographic Aluminum Stepwedge is constructed from a single piece of High Purity Aluminum. The nine steps have thickness ranging from 0.3 mm to 2.27 mm.

Model 118 Mammographic Aluminum Stepwedge features:

- made of High Purity Aluminum Alloy and Copper
- made from a single piece of High Purity Aluminum
- compact design

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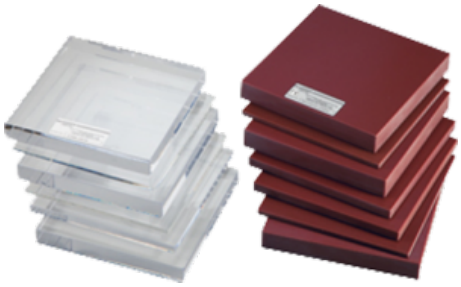
Model 159A / 159A-BR – Mammographic Phototimer Consistency Tool – Sun Nuclear



Sun Nuclear's (formerly Gammex) model 159A and 159A-BR Mammographic Phototimer Consistency Tools are designed to test Automatic Exposure Control (AEC) performance.

Model 159A / Model 159A-BR Mammographic Phototimer Consistency Tool features:

- test tools come in either 7 pieces of acrylic (159A) or 7 pieces of breast tissue equivalent material (159A-BR)
- multiple thicknesses and densities

If you want to continue your search for additional information on mammography accessoires, try this link.

Model 150K – Mammographic DCF Test Tool – Sun Nuclear

Sun Nuclear's (formerly Gammex) Model 150K Mammographic Density Control Function (DCF) test tool enables a quick and accurate assessment of a film-screen mammography unit's Automatic Exposure Control (AEC).

Model 150K Mammographic DCF Test Tool features:

- engraved density scale and sliding exposure plate
- can slide exposure place without moving the cassette
- the tool consists of a base plate with a sliding exposure plate which contains a small window
- design permits sliding the exposure plate without moving the plate
- light weight and convenient to use

Model 429 – Ultrasound Biopsy Phantom – Sun Nuclear

The same eye and hand coordination skills required to perform ultrasound-guided biopsies of other organs can be learned using this phantom from Sun Nuclear (formerly Gammex).

The use of ultrasound-guided needle biopsy to diagnose the form and structure of lesions is growing worldwide.

The Ultrasound Biopsy Phantom simulates the look and feel of a human breast.

Model 429 Ultrasound Biopsy Phantomeatures features:

- 11 test objects on three different levels, allowing you to practice identification, aspiration and biopsy procedures on cysts, high-contrast and low-contrast lesions
- simulates the look and feel of a human breast
- the lesions are:
  - 3 fluid-filled cysts
  - 4 high contrast lestions
  - 4 low contrast lesions
- material in the solid lesions are colored to differentiated them from the surrounding tissue
- designed for multiple uses

If you want to continue your search for additional information on this product try this link.

Model 156D – Stereotactic Mammographic Accreditation Phantom – Sun Nuclear

Sun Nuclear's 156D Stereotactic Mammographic Accreditation Phantom with Gammex technology, is used for monitoring digital mammography systems currently used for stereotactic biopsy and localization.

The 156D is accredited by the ACR.

Model 156D Stereotactic Mammographic Accreditation Phantom features:

- compact size
- wax insert contains 12 sets of test objects
- approximates the size of a 4.2 cm compressed breast of 50% glandular and 50% adipose compostion
- wax insert contains
  - simulated micro-calcifications of Aluminum oxide specks
  - 4 different size nylon fibers to simulate fibrous structures
  - 4 different size lens-shaped masses to simulate tumors
- replaceable wax insert which contains the targets

Do you want to know more about the Stereotactic Mammographic Accreditation Phantom?

If you want to continue your search for additional information on this product try this link.

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Model 157A – Mammographic Film/Screen Contact Test Tool – Sun Nuclear

Today’s mammography film/screen systems from Sun Nuclear (with Gammex technology) have higher resolution than diagnositic radiography x-ray systems and require test tools with finer detail. Regular testing with the Gammex 157A detects problems and artifacts early.

Use of the tool and the evaluation of the resulting images is simple. Areas of poor screen contact appear darker than areas of good contact. Any dark areas greater than 1 cm should be investigated and corrective action taken.

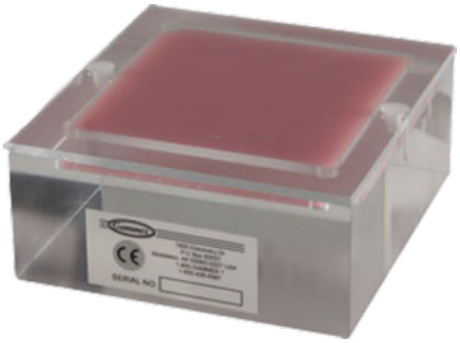
Sun Nuclear recommends testing cassettes every six months or when new or repaired cassettes are put into service.

Model 157A Mammographic Film/Screen Contact Test Tool features:

- screen size of 24 x 30 cm
- mesh size of #40 copper makes the tool ideal for testing new cassettes.
- compact and easy to store

If you want to continue your search for additional information on this product try this link.

Model 156 – Mammographic Accreditation Phantom – Sun Nuclear



Sun Nuclear's (formerly Gammex) Model 156 Mammographic Accreditation Phantom has been #1 phantom listed by the ACR since the start of the MQSA program in 1994. The Gammex 156 provides the physical standard baseline for assuring the quality of the images produced by your mammographic system.

The 156 simulates the x-ray attenuation of a 4.2 cm slab of compressed human breast composed of 50% adipose tissue and 50% glandular tissue. Target objects in the phantom are of known size, shape, and density. These represent the different structures or malignancies found when imaging the breast.

Image quality and system sensitivity is evaluated using these targets and following ACR/MQSA guidelines.

Model 156 Mammographic Accreditation Phantom features:

- the 156 simulates the x-ray attenuation of a 4.2 cm slab of compressed human breast composed of 50% adipose tissue and 50% glandular tissue
- acrylic construction with a replacable wax insert
- test objects composes of nylon fibrils and simulated micro-calcification specs
- provides the test step needed to measure density differences

If you want to continue your search for additional information on this product try this link.

Diagnostic Imaging › QA phantoms

Model 468 – CT Dose Index Phantom – Sun Nuclear

The Model 468 CT Dose Index Phantom from Sun Nuclear (formerly Gammex) has been designed to meet specifications outlined by the Food and Drug Administration (FDA 21CFR 1020.33) and the International Electrotechnical Commission (IEC 60601-2-44). The phantom is offered as a 2-piece or 3-piece nested configuration. Each configuration includes a custom case with nested modules, allowing the user to adapt the phantom to the desired size required by the protocol in use.

CT Dose Index (CTDI) Phantom features:

- easy to use design
- measures absorbed dose and monitor scanner output very fast
- includes a custom hard case for safe storage and easy transportation
- material: polymethyl methacrylate (PMMA/Acrylic)
- adult body 32 cm diameter: 32 cm diameter x 14.5 cm thick
- adult head/pediatric body: 16 cm diameter x 14.5 cm thick
- pediatric head (model 468-BHP only): 10 cm diameter x 14.5 cm thick
- weight: 13.9 kg (30.5 lbs)

If you want to continue your search for additional information on this product try this link.

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Partner Quart

QUART X-Ray QA Solutions is a German-based provider of quality assurance technologies for diagnostic imaging and radiological applications. Their offerings encompass QA phantoms, dosimetry tools, measurement systems, and analysis software, supporting medical professionals in maintaining high standards of patient safety and imaging accuracy.

Product offering

QUART DVTap DIN 6868-161

QUART IAEA-EFOMP-ESTRO Test Set

Diagnostic Imaging

QUART DVTap DIN 6868-161

QUART DVTap DIN 6868-161

Developed over a period of 2 years in a project involving major dental manufacturers, and released by QUART already in 2007, the DVTap has become a national and international standard solution for CBCT – based on our company’s innovative approach.

The QUART DVTap phantom is designed to be used as a universal tool for 3D imaging equipment including CT applications. The phantom fully complies with DIN 6868-161 for acceptance tests in DVT/CBCT.

In conjunction with a specially developed software (QUART DVTtec), quick and comprehensive CBCT IQ tests can be performed.

Only one exposure is necessary to create a 3D data set containing all required parameters to evaluate CBCT image quality. Automated evaluation is performed with the unique QUART DVTtec software.

The phantom can be used for field sizes from 4x4cm to large fields-of-view (FOV). A universal holder or customized phantom holders are available for easy and reproducible positioning.

Technical specifications

- Spatial resolution: Line spread function
- Resolution: Z-Resolution
- Standard test objects: PMMA / Air / PVC
- Material equivalents : Free Air / Soft tissue / Bone
- Positioning tools: Linear (top side) / Selective markers
- Size: Ø 16 cm, height: 15 cm
- Scatter Radiation modules: 1x 6 cm / 1x 5 cm

Parameters

- Nyquist Frequency (NF)
- Contrast-to-Noise Ratio (CNR)
- Homogeneity / Image Uniformity
- Z-Resolution
- Modulation Transfer Function (MTF)
- Artefacts, Image Flaws
- Figure of Merit / Acceptance Indicator

https://peomedical.com/webinar/quality-control-in-cone-beam-

computed-tomography-cbct-efomp-estro-iaea-protocol/attachment/quart-dvt-kp/

QUART IAEA-EFOMP-ESTRO Test Set

QUART IAEA-EFOMP-ESTRO Test Set

The test set was compiled based on the recommendations of the three organizations, **IAEA, EFOMP, and ESTRO**, for a quick and time-efficient QA performance at CBCT imaging equipment.

These recommendations are principally based on DIN 6868-161 and 6868-15 for CBCT quality assurance.

These recommendations are principally based on DIN 6868-161 and 6868-15 for CBCT quality assurance.

Only one exposure is required to create 3D data set containing all required parameters to evaluate image quality. Automated image quality evaluation is performed through the unique QUART CTtec QA/QC software.

The DVTkp phantom can be applied for field sizes from 4x4cm to large fields-of-view (FOV). Customized holders for a variety of CBCT systems are available.

Technical specifications:

- Spatial resolution: Line spread function
- Standard test objects: PMMA / Air / PVC
- Material equivalents: Free Air / Soft tissue / Bone
- Positioning tools: Linear (top side) / Selective markers
- Size: Ø 16 cm, height: 15 cm

Parameters:

- Nyquist Frequency (NF)
- Contrast
- Noise
- Contrast-to-Noise Ratio (CNR)
- Homogeneity / Image Uniformity
- Spatial Resolution / Modulation Transfer Function (MTF) at 10% & 50% modulation
- Modulation Transfer Function (MTF) as per IEC 62220-1-2
- CT Numbers / Hounsfield Units
- Z-Axis Resolution / NF and MTF in Axial Direction
- Artefacts, Image Flaws, etc.
- System Indicator / Acceptance Indicator (Figure of Merit)

- Patient / Phantom Positioning Accuracy
- Additional QA/QC related tests such as geometry and distance measurements etc. to be conducted in an external DICOM viewer

https://www.sciencedirect.com/science/article/abs/pii/S1120179717301837

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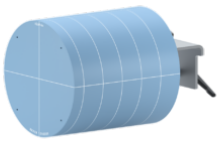
Partner Other

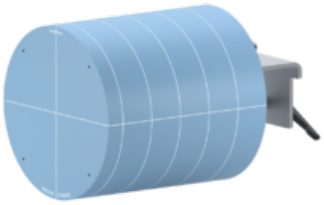
Product offering

IQphan™ Comprehensive CT Image Quality Phantom



IQphan™ Comprehensive CT Image Quality Phantom

- Perform QA across CT imaging systems, from sophisticated diagnostic scanners to cone beam to on-board radiotherapy systems
- Use with RapidCHECK™ Image Quality Analysis software for exacting CT imaging quality testing, with quick, consistent analysis
- Made from true tissue-mimicking HE CT Solid Water®



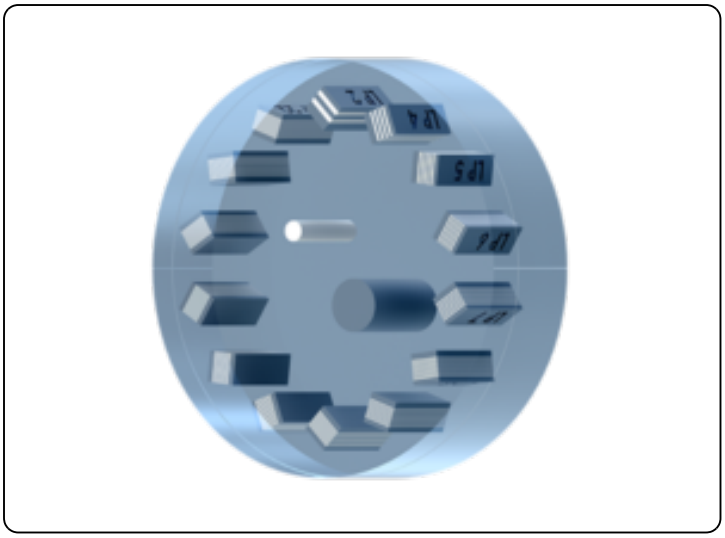
There are a multitude of CT imaging systems, spanning the diagnostic and radiation therapy spaces. This breadth has been a challenge for QA because of the different performance characteristics of these systems. With IQphan, a single phantom addresses QA across the range of specifications of different CT scanners, enabling you to gain more QA information than may be available with other phantoms.

Comprehensive Image Quality Phantom

With IQphan, users can perform QA across CT imaging systems, from sophisticated diagnostic scanners to cone beam to on-board radiotherapy systems. A combination of modules supports a robust variety of tests.

Automated Analysis

Use IQphan with RapidCHECK™ Image Quality Analysis software for exacting CT imaging quality testing, with quick, consistent analysis.

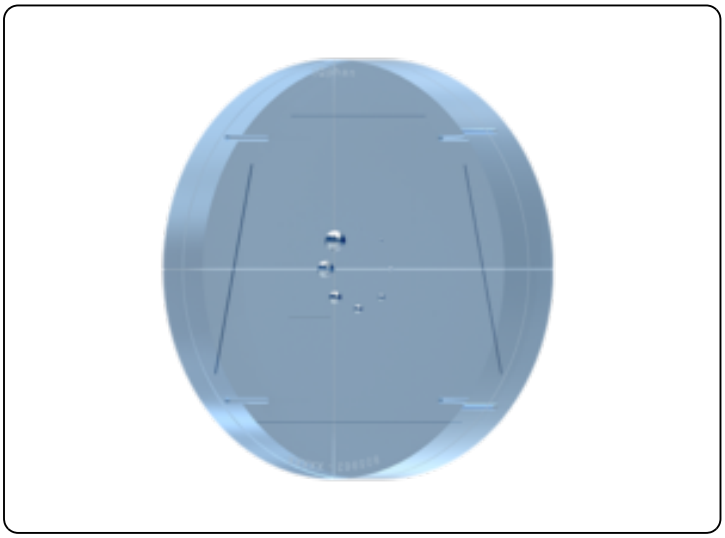


High-Contrast Resolution Module

Designed for manual and automated analysis, this module features high-resolution line pairs, large 3D patterns that are easy to visualize, and robust data analysis in the RapidCHECK software.

- All line pair targets oriented 45° to radial line for a consistent balance between radial and circumferential resolution

- Includes high resolutions up to 22 lp/cm
- Designed for automation: Includes solid samples of resolution materials for accurate results during software analysis[1]
- Zinc high-contrast material provides visibility without over-ranging scanners



Slice Thickness & Geometric Evaluation Module

Multiple wire-ramp materials and diameters enable this module to analyze slice thickness on scanners ranging from diagnostic CT to CBCT and MVCT.

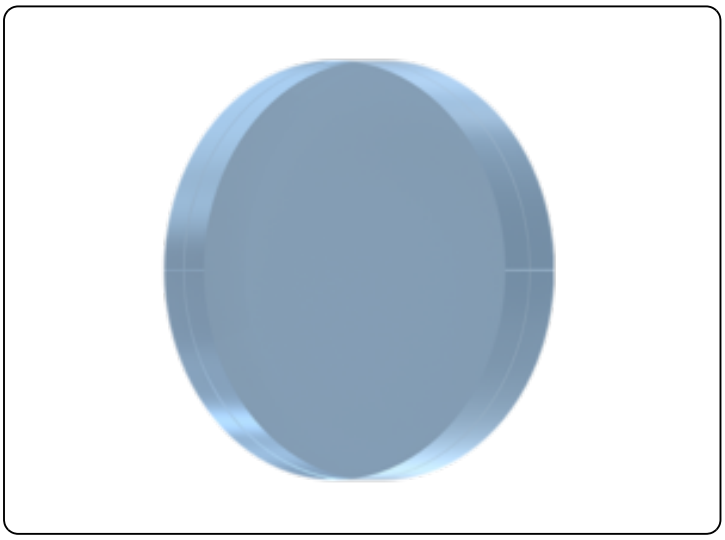
- Measure slice thickness with two opposed pairs of wire ramps, one pair thinner and one pair thicker
- Enables Modulation Transfer Function with one-off vertical wire
- Check geometric accuracy with a set of 8 acrylic spheres
- Perform MTF measurements with BB’s of two different sizes
- Robust across a wide range of CT systems, from diagnostic to RT

Low-Contrast Detectability Module

Finally, a low-contrast test that works for radiation therapy systems as well as diagnostic CT. Challenge your high-end systems with 0.3% and 0.6% contrasts. Test your radiation therapy CT systems with body-like contrasts of 1.0% and 2.0%, in sizes ranging from 2.0 to 25.0 mm.

- Evaluate Low Contrast Detectability at four different contrast levels: 0.3%, 0.6%, 1.0%, and 2.0% (3 HU, 6

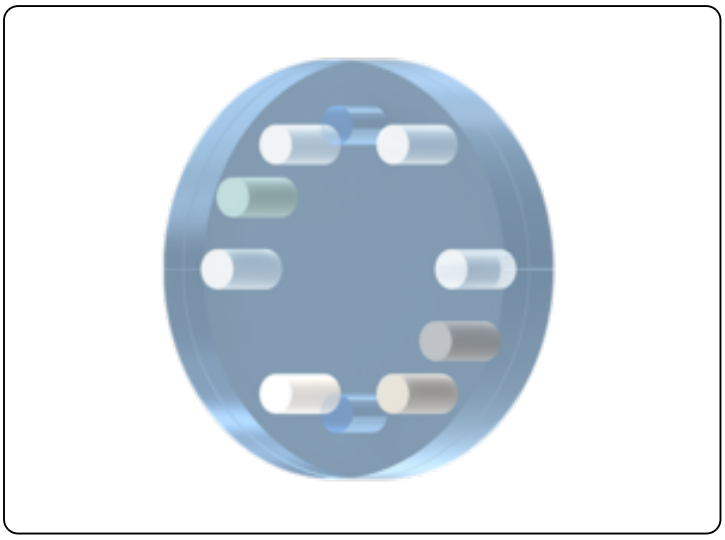
HU, 10 HU, and 20 HU)
- Sizes of each contrast object range from 2 to 25 mm
- Low-Z density-based contrasts
- The four precisely formulated contrast levels use density variations of low-Z materials for consistency across CT energies



Uniformity Module

Assess noise and uniformity in our HE CT Solid Water material.

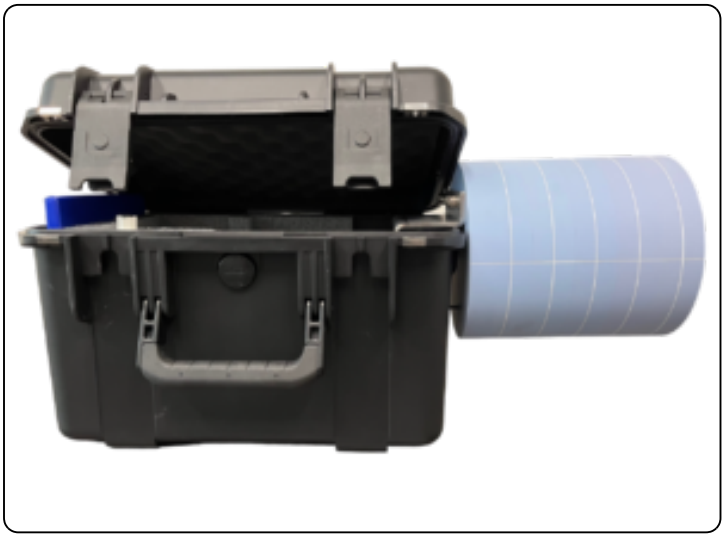
- Measure uniformity and noise
- Constructed of HE CT Solid Water for unparalleled water equivalency across the energy spectrum



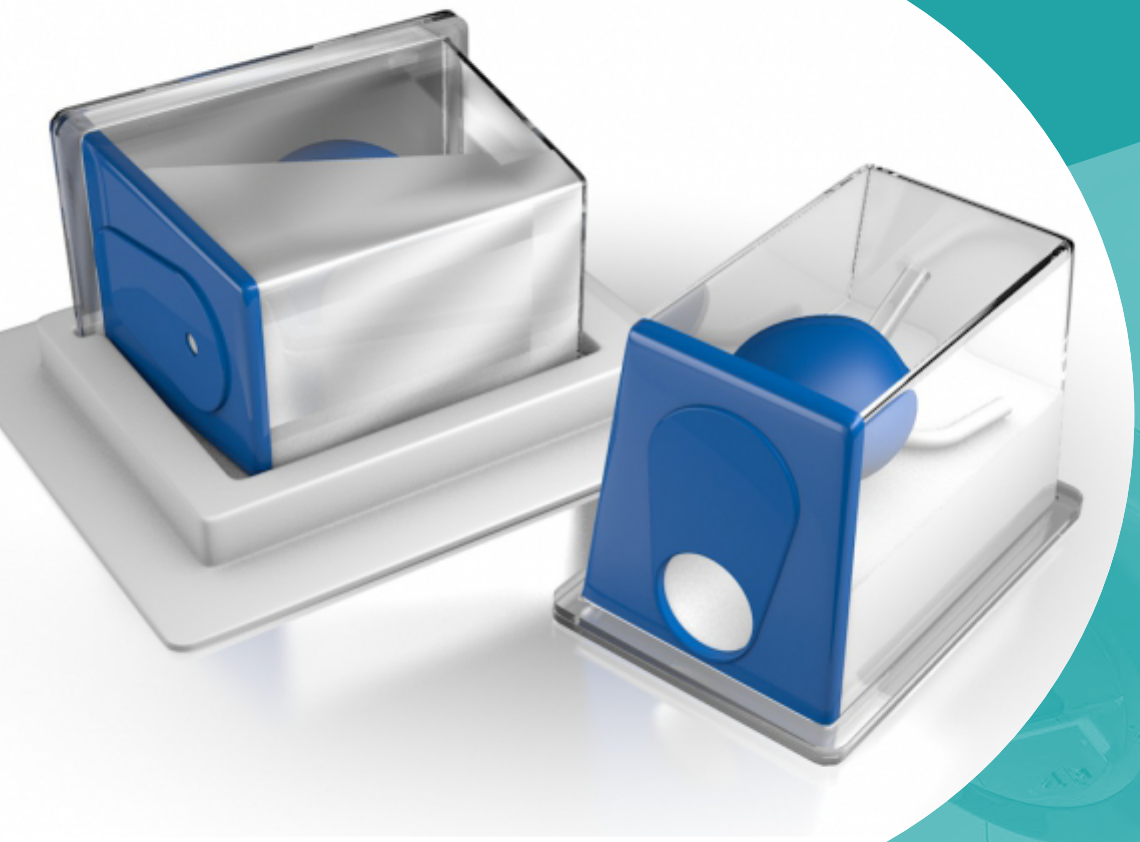
HU Module

Test the consistency of known HU materials and measure the effective energy of the scan.

- 12 material samples
- Materials include Tissue-Mimicking Materials (TMMs) as well as commonly referenced plastics
- Bone is not just dense plastic; TMMs include higher-Z materials that can improve calibrations and effective energy measurements



TRAINING PHANTOMS



peo MEDICAL

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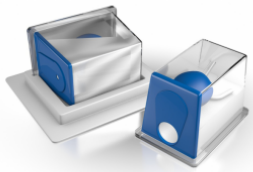
Partner Bertin Technologies

Bertin Technologies is a global provider of advanced radiation detection and environmental monitoring solutions, specializing in handheld monitors, personal electronic dosimeters, environmental monitoring systems, and waste & recycling management technologies. Their instruments are designed to meet the rigorous demands of nuclear facilities, emergency response teams, and environmental agencies.

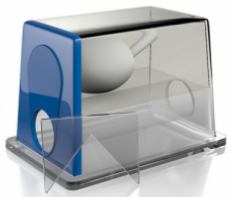
Product offering

Model 057A Triple Modality 3D Abdominal Phantom – CIRS

Model 053S, 053L and 053L-EF Ultrasound Prostate Training Phantom – CIRS



Model 053-I Ultrasound Prostate Training Phantom – CIRS



Model 600 3D Sectional Torso Phantom – CIRS

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Diagnostic Imaging › QA phantoms

Model 057A Triple Modality 3D Abdominal Phantom – CIRS

The CIRS Triple Modality 3D Abdominal Phantom is constructed of a self-healing formulation of Zerdine®(1) that allows multiple biopsy insertions with minimal needle tracking, and is ideal for demonstrating image-guided navigation technologies.

Abdominal imaging is useful for diagnosing disease and monitoring treatments. The Model 057A is representative of a small adult abdomen and can be imaged under CT, MR and ultrasound. This feature makes the phantom a useful tool for applications such as image fusion studies; imaging protocol developments; scan technique training; and system testing, validation and demonstration.

The Model 057A simulates the abdomen from approximately the thorax vertebrae (T9/T10) to the lumbar vertebrae (L2/L3) using simplified anthropomorphic geometry. The materials provide contrast between the structures under CT, MR and ultrasound. The solid polymer background gel will not leak when punctured.*

Internal structures include the liver, the portal vein, two partial kidneys, a partial lung, the abdominal aorta, the vena cava, a simulated spine and six ribs. The liver has six lesions and the kidneys each have one lesion. A muscle layer and outside fat layer surround these structures and plastic end caps make the phantom durable enough for extended scanning. Blood vessels have CT contrast added to provide enhanced auto registration in image fusion applications

The Phantom includes a foam lined hard carry case. To accommodate image fusion techniques, CIRS can offer value-added options and services such as phantom specific CMM, reference CT or MRI data sets, attachment of customer specific registration devices and inclusion of special point markers.

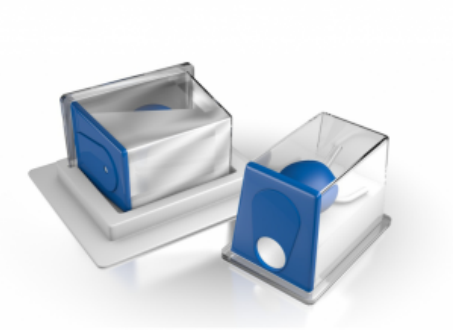
Features

- Demonstrate CT, ultrasound and MRI scan techniques
- Assess image fusion algorithms
- Test new equipment
- Validate automated biopsy systems
- Optimize imaging protocols
- Improve performance of freehand abdominal biopsies

Contact our product specialist or download the datasheet.

Model 053S, 053L and 053L-EF Ultrasound Prostate Training Phantom – CIRS

CIRS designed the Ultrasound Prostate Training Phantom as a multi-modality disposable phantom developed for practicing procedures that involve scanning the prostate with a rectal probe. There are three different models: Model 053S, 053L and 053L-EF.



The clear, acrylic container contains the prostate along with structures simulating the rectal wall, seminal vesicles and urethra. A 3 mm simulated perineal membrane enables various probes and surgical tools to be inserted into the prostate.

This phantom is an ideal training device for ultrasound guided cryosurgery, radioactive seed implantation, and needle biopsy.

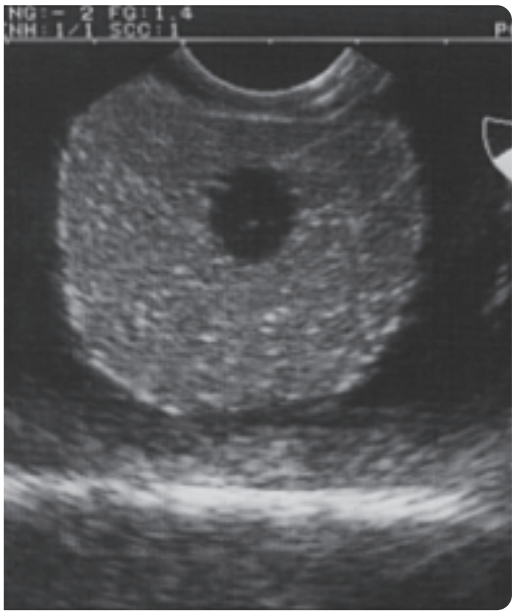
OPTIONS

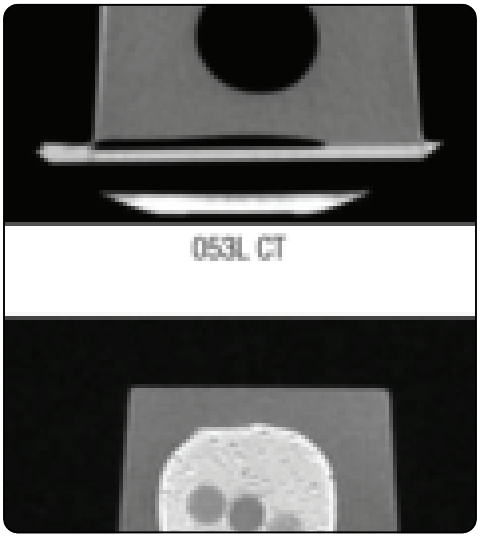
The phantom is available in three ways. The phantom is available with lesions (053L), without lesions (053S) and you can order either the standard side-fire configuration or an alternate geometry optimised for end-fire probes (053L-EF).

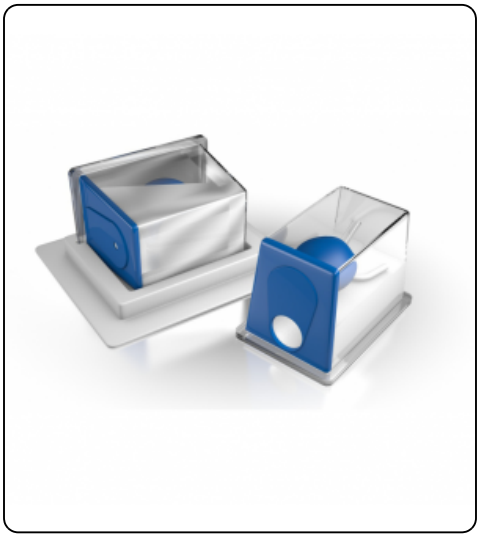
MODEL 053S 053L & 053L-EF FEATURES

- Includes rectal wall, seminal vesicles, perineal membrane and urethra
- Train for ultrasound-guided cryosurgery, seed implantation and needle biopsy with one phantom
- Compatible with multiple probes and surgical tools
- Structures are visible under CT, MRI, ultrasound and elastography
- Gel designed to minimise needle tracking

For more information, go to this page from our partner.







If you have any questions…

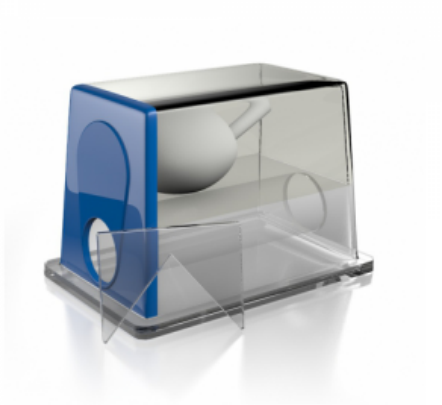
Contact PEO

Diagnostic Imaging › Training phantoms

Model 053-I Ultrasound Prostate Training Phantom – CIRS

The CIRS Ultrasound Prostate Training Phantom (model 053-I) is a disposable phantom perfect for practicing permanent seed implantation procedures. It contains several unique features to assist the teaching and learning process.

The simulated perineal membrane permits needle insertion with realistic resistance. In addition, the area below the rectal wall is a clear gel to permit visualisation of probe orientation.



PROSTATE TRAINING PHANTOM FEATURES

- Perineal membrane for needle insertion with realistic resistance
- Assess image fusion algorithms
- Test new equipment
- Optimize imaging protocols
- Improve performance of freehand abdominal biopsies

For more information about prostate phantoms, visit our partner's website!

Model 600 3D Sectional Torso Phantom – CIRS

The Model 600 3D Sectional Torso Phantom has been designed for providing an accurate simulation of an average torso (22 cm posterior-anterior thickness) for medical imaging and dosimetry applications.

Model 600 3D Sectional Torso Phantom features:

- can be configured to accommodate a multitude of dose measurement media
- usable on any X-ray imaging or treatment device
- includes internal organ structures
- ideal for calibration, QA and training purposes when specific internal organs are of interest

Read more about the Model 600 3D Sectional Torso Phantom on the CIRS website

Model 600 3D Sectional Torso Phantom CIRS

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Partner Sun Nuclear Corporation

Sun Nuclear is a leading provider of comprehensive Quality Management solutions for radiation therapy and diagnostic imaging. Their portfolio encompasses positioning systems, dosimetry tools, QA phantoms, detectors, dose rate monitoring devices, analysis software, and training phantoms. These solutions are designed to support medical professionals in ensuring accurate, safe, and efficient patient care.

Product offering

Image-Guided Abdominal Biopsy Phantom (model 071B) – CIRS

Model 1425 – Doppler Flow System – Sun Nuclear

Model 1430 – Mini-Doppler Flow System – Sun Nuclear

Model 164A – Stereotactic Breast Biopsy Phantom – Sun Nuclear

Model 711-HN ATOM Max Dental & Diagnostic Head Phantom – CIRS

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Diagnostic Imaging › QA phantoms

Image-Guided Abdominal Biopsy Phantom (model 071B) – CIRS

The Image-Guided Abdominal Biopsy Phantom is a simplified abdominal phantom. It's suitable for training and demonstrating image-guided needle biopsy navigation tools or procedures that require a constant visual reference for needle placement. The phantom allows many uses over time because of the background gel minimizes needle tracks when punctured.

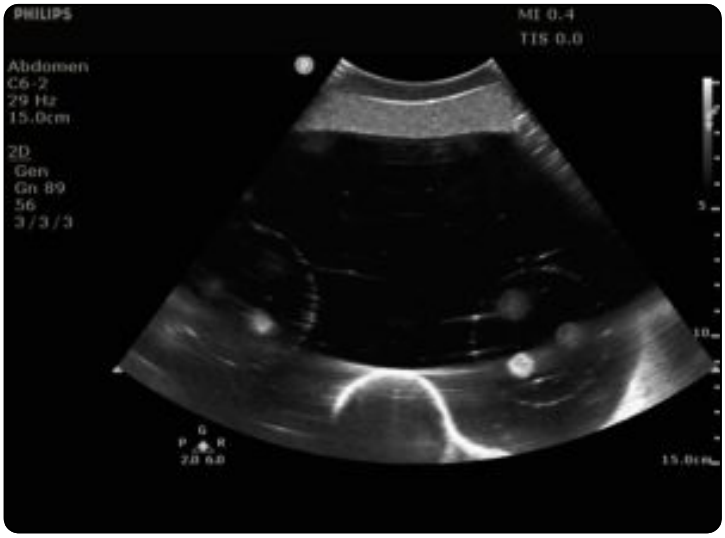
The phantom contains 12 lesions, 5-12 mm in diameter, positioned in groups of three in consistent locations within the phantom. It also includes simulated spine and ribs, and an "H" marker within the spine to assist in determining the head side within a CT-image. You can see the lesions and spine under ultrasound, CT and MRI. The solid polymer gel background is anechoic and will also not leak when it is punctured.

The phantom also includes a foam lined hard carry case and it's useful in multiple fields. The phantom is perfect for CT, Ultrasound and MRI, live scanning and biopsy training.

IMAGE-GUIDED ABDOMINAL BIOPSY PHANTOM FEATURES

- Improve performance of freehand abdominal biopsies
- Minimal needle tracking- Z-skin fat layer and softer gel provide better self-healing properties
- Validate automated biopsy systems
- Suitable for CT, MRI and Ultrasound

If you want to read more about this phantom, take a look ar our partner's website!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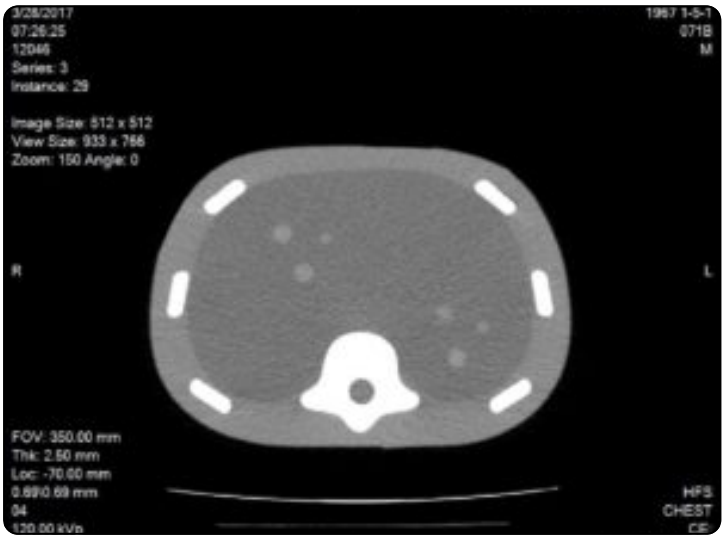
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Model 1425 – Doppler Flow System – Sun Nuclear

The Doppler Flow System from Sun Nuclear (formerly Gammex) tests both Doppler and B-mode ultrasound systems in a single unit. The compact, easy to store and transport designed system combines the flow system, phantom and electronic flow controller into a single unit. Scanner selection, quality control testing, training and research can all be performed using this multi-faceted ultrasound tool. A wide range of targets and vessels are included in the unit.

Doppler Flow System features:

- the Choice of attenuations of 0.5 or 0.7 dB/cm/MHz
- combines low echo matrix with line reflectors and anechoic cyst targets at 2, 4 and 6 mm depths
- two 5mm vessels in the system adhere to FDA Doppler sensitivity recommendations.
- flow controller with a range of 1 to 12.5 ml/sec
- 5 preset pulse flow patterns

Do you want to know more about the Doppler Flow System?

If you want to continue your search for additional information on this product try this link.

Diagnostic Imaging › QA phantoms

Model 1430 – Mini-Doppler Flow System – Sun Nuclear

The Doppler Flow System tests both Doppler and B-mode ultrasound systems in a single unit. The compact, easy to store and transport designed system combines the flow system, phantom and electronic flow controller into a single unit. Scanner selection, quality control testing, training and research can all be performed using this multi-faceted ultrasound tool. A wide range of targets and vessels are included in the unit.

Mini-Doppler Flow System features:

- the Choice of attenuations of 0.5 or 0.7 dB/cm/MHz
- includes 404GS LE components with Grey Scale targets
- combines low echo matrix with line reflectors and anechoic cyst targets at 2, 4 and 6 mm depths
- two 4 mm vessels in the system adhere to FDA Doppler sensitivity recommendations.
- flow controller with a range of 0 to 10 ml/sec
- 8 preset pulse rates

Do you want to know more about the Mini-Doppler Flow System?

If you want to continue your search for additional information on this product try this link.

Model 164A – Stereotactic Breast Biopsy Phantom – Sun Nuclear

The Stereotactic Breast Biopsy Phantom form Sun Nuclear (formerly Gammex) is designed to be used as a training phantom for performing biopsy procedures. It provides a good representation of breast tissue.

Multiple radiopaque lesions are impeded in the phantom to permit multiple uses of the phantom by different personnel.

Model 164A Stereotactic Breast Biopsy Phantom features:

- made of clear gel encased in a soft vinyl for easy compression and a skin-like resistance to needle insertion
- embedded in the gel are radiopaque lesions ranging in size for practicing core biopsies
- liquid dye filled lesions allow for the practice of fine needle aspiration
- compressible within a biopsy instrument

If you want to continue your search for additional information on this product try this link.

Diagnostic Imaging › QA phantoms

Model 711-HN ATOM Max Dental & Diagnostic Head Phantom – CIRS

The Model 711-HN ATOM Max Dental & Diagnostic Head Phantom is a standard of reference for diagnostic radiology of the head. The phantom has been developed to assist clinical and technical staff in the monitoring, selection, verification and training of scanning parameters common to most radiological procedures requiring fine anatomical details.

Model 711-HN ATOM Max Dental & Diagnostic Head Phantom features:

- tissue Equivalent from 50 keV to 25 MeV
- carrying case included
- includes detailed anatomical features
- Frankfurt plane identified to ensure proper alignment
- positioning stand with six degrees-of-freedom
- easy to set up and use

Read more about the Model 711-HN ATOM Max Dental & Diagnostic Head Phantom on the CIRS website