



QUALITY CONTROL IN MEDICAL IMAGING

**FULL MEDICAL IMAGING QA SOLUTIONS:
BEAM QA · IMAGE QA · DISPLAY QA · PATIENT DOSE QA**



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Quality Control for Diagnostic Imaging Modalities

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A black and white close-up photograph of a young child's face, focusing on the eyes and nose. The child has light-colored hair and eyes. The text "DOSE SAFETY IN MEDICAL IMAGING" is overlaid on the left side of the image. The word "DOSE SAFETY IN" is in a bright green color, while "MEDICAL IMAGING" is in black. There are green L-shaped corner markers in the top right and bottom left corners of the page.

DOSE SAFETY IN MEDICAL IMAGING

WHY IBA DOSIMETRY?

Outstanding QA Solutions

IBA Dosimetry is your full QA solution partner, allowing you to provide quality control in medical imaging:

- Better image quality for improved diagnosis and therapy
- Advanced imaging dose control for patient safety

BEAM QA



IMAGE QA



DISPLAY QA



PATIENT DOSE QA



↑ Your IBA expert service team serving you long after the sale

Outstanding Customer Care and Service

IBA Dosimetry is your partner long after the product sale. With your CAREprogram, IBA provides you with a wide range of expert services that enable you to maximize efficiency and usability of your medical imaging quality control.



Expert Service by a dedicated team of qualified professionals determined to support more than 10.000 users around the world when needed:

- Telephone and on-site support
- Repair service



User Trainings by expert trainers :

- Learn the know how to perform your QA most competent and efficient
- Dedicated high-end ICC training center



Calibration Services at the IBA SS DL:

- Ensure your measurement tools are calibrated with highest standards
- Quality calibrations based on Secondary Standard Dose Lab

WHY IBA DOSIMETRY?



Preferred Partner of the Medical Imaging Industry

IBA dosimetry QA solutions are used by leading x-ray equipment manufacturers.

- **IBA Inside: Dose Area Product Meters from IBA are built into highest standard x-ray machines powering patient dose safety**
- **MagicMaX multimeter is used by x-ray service organizations and final testing**

Medical Imaging Quality Assurance tools in Radiation Therapy

IBA offers complete solution kits for the imaging QA needs in RT

- **Dose and Image QA for CT Sim and Linac IGRT systems**
- **kV Imaging QA and Dosimetry for CBCT, OBI, and CT-Sim**



|| We are using the Multimeter MagicMaX from IBA Dosimetry GmbH for acceptance and constancy Tests with our EXAMION® x-ray systems as well as other systems that we maintain. We value the usability and high quality of the measurement device as well as the fast and competent service of IBA Dosimetry, especially regarding calibration and maintenance of our devices.

During various trainings we could benefit from the extensive know-how of IBA which enabled us to offer our customers the legally required routine checks of the IBA Dose-Area-Product-Meters.

The trainings at the IBA International Competence Center (ICC) have further deepened our knowledge in the area of x-ray quality assurance and made our workflow more efficient.

||
*Lars Olav Bromm
Project Manager
EXAMION GmbH, Munich, Germany*

EXAMION®

|| The most notable feature of the MagicMaX solution is its speed and simplicity of use. The system quickly and automatically records imaging doses and resets following each exposure for serial measurements. From setup to breakdown, my TrueBeam's kV imaging system is evaluated in 5 minutes. It's hard to argue against routine imaging QA when such an easy and affordable solution is available.

||
*Jacob A. Gersh, PhD
Medical Physicist
Gibbs Cancer Center, Spartanburg, SC, USA*



COMPLETE QA SOLUTIONS IN DIGITAL RADIOLOGY

Image Quality & Dose Control

MagicMaX *Universal* Multimeter



Mammo Kit

DigiDent Kit

CT Kit

Medical Display
QA Kit

Rad/Flu Kit

— **Complete Solution Kits, all-in-one, all modalities**

Multimeter & Test Phantoms, Monitor QA

— **Over 30 years of innovations**

Proven and certified by leading authorities

MagicMaX Universal Multifunctional Complete Solution



MagicMaX Universal

The new flexible solution in beam QA.

Versatile through exchange of detectors and ionization chamber. Due to the modular design for all x-ray modalities:

- Radiography
- Fluoroscopy
- Mammography
- Computed Tomography
- Dental Radiography
- Luminance measurement

Basic equipment VD0202010:

- **MagicMaX Universal** [1]
USB powered system to be used with PC/Laptop.
- **MagicMaX Software** [2]
Clear & structured design gives you a fast total overview as well as comprehensive expert level detail view. The various options of Excel®-exporting will grand fast and easy reporting.

Modular equipment:

- **Multidetector „XR“** VD0202030 [3]
For Radiography, Fluoroscopy & Dental Radiography.
(Parameters: Dose / dose rate, Dose per pulse, kVp / PPV, Time, Total filtration, Half Value Layer (HVL), Waveform)
- **Multidetektor „XM“** VD0202040 [4]
For Mammography.
(Parameters: Dose / dose rate, Dose per pulse, kVp / PPV, Time, Total filtration, Half value layer (HVL), Waveform)
- **Current Probe [mAs-Messsonde]** VD0201975 [5]
For invasive and non-invasive measurements of the tube current.
- **Illuminance detector MM-LS** VD0201951 [6]
Light output measurements of image intensifiers and viewing boxes.
- **Ionisations chamber DCT10-MM** VD1020110 [7]
For DLP (in mGy*cm) and dose measurements and for CTDI calculations at CT Scanners.

Test devices:■ **Primus A** VD0203650

For image quality in Radiography & Fluoroscopy according to DIN 6868-150,2013, DIN 6868-4,2007 and new DIN 6868-4, 2017.

[For detail information page 21.]

■ **MAM-162** VD0203741

For image quality in Mammography according to DIN 6868-162.

[For detail information page 34.]

■ **2-pieces PMMA CT-Phantom** VD1003110

For CTDI-measurements according to IEC60601-2-44, IEC 61223-3-5, IEC 61223-2-6.

[For detail information page 44.]

■ **DigiDent**

For acceptance- and constancy tests in Dental Radiography according to IEC 61223-3-4 / 61223-2-7 and DIN 6868-5 / 6868-151.

[For detail information page 50.]

**Complete Sets****MagicMaX Universal Full QA Kit**

- MagicMaX Universal
- Test phantoms for all X-ray modalities
- Multidetector radiography / fluoroscopy XR and mammography XM
- Ionization chamber DCT10-MM for CT
- MagicMaX Current Probe
- Illuminance detector MM-LS

**MagicMaX Universal CT Case**

- MagicMaX Universal
- 3-part CT phantom for adults and pediatric
- Ionization chamber DCT10-MM for CT
- Illuminance detector MM-LS

**MagicMaX Universal rad/flu Case**

- MagicMaX Universal
- Multidetector radiography / fluoroscopy XR
- MagicMaX Current Probe
- Test phantom for radiography / fluoroscopy
- Illuminance detector MM-LS

**MagicMaX Universal Case**

- MagicMaX Universal
- Multidetector radiography / fluoroscopy XR and mammography XM
- Ionization chamber DCT10-MM for CT
- MagicMaX Current Probe
- Illuminance detector MM-LS

**MagicMaX Universal mammo Case**

- MagicMaX Universal
- Multidetector mammography XM
- Test phantom MAM-162
- MagicMaX Current Probe
- Illuminance detector MM-LS



Complete Solution Kit for Rad/Flu/Mammo/CT

MagicMaX *Universal* Full QA Kit Dose & Image QA for Rad / Flu / Mammo / CT

VD0250125

Your All-In-One Solution keeping you mobile.

Consisting of:

- **MagicMaX *Universal* high-end Multimeter Solution** for all needs in beam verification; Incl. advanced MagicMaX software for fast and complete dose measurement overview; Plug and Play system allows fast and seamless workflow within ONE minute setup time
- **Test phantoms for Radiography, Fluoroscopy and Mammography**
Primus A phantom for Digital & conventional Radiography and Fluoroscopy; Test device Mammo-14 for constancy tests / Quality Checks of Mammographic equipment according DIN 6868-162; incl. Primus PMMA attenuator
- **2-part PMMA CT-Phantom**
Adult Head & Body / Pediatric Body
- **Test device Mammo-14**
Image Quality Phantom for digital mammography systems, according DIN 6868-14.
- **Multidetector XR for Radiography / Dental and Fluoroscopy and Multidetector XM for Mammography** for attachment to the MagicMaX *Universal*;
Measuring values: kVp, PPV, HVL, dose, dose rate, dose per pulse, exposure time and wave form



- **DCT10-MM**
CT Ionization Chamber 10 cm
- **DCT30-MM**
- **MagicMaX Current Probe**
Unique invasive and non-invasive measurements of the tube current
- **Illuminance Detector MM-LS**
Light output measurements of image intensifiers and viewing boxes
- **Transportation Cases**
2 case solution with trolley

For more technical information, please see the MagicMaX family matrix at the end of the brochure!



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QUALITY CONTROL IN

RADIOGRAPHY AND FLUOROSCOPY

**PROTECT +
ENHANCE +
SAVE LIVES**

Complete Solutions

MagicMaX Universal Rad/Flu Case VD0250122

Your All-In-On Dose & Image QA Solution.

Consisting of:

- **MagicMaX Universal high-end Multimeter Solution** for all needs in beam verification; incl. advanced MagicMaX software for fast and complete dose measurement overview; Plug and Play system allows fast and seamless workflow within ONE minute setup time
- **Test Phantom for Radiography & Fluoroscopy** Primus A phantom for Digital & conventional Radiography & Fluoroscopy; incl. PMMA attenuator
- **Multidetector XR for Radiography & Fluoroscopy** Measuring values: kVp, PPV, HVL, dose, dose rate, dose per pulse, exposure time and wave form
- **MagicMaX Current Probe:** Unique invasive & non-invasive measurements of the tube current
- **Illuminance Detector MM-LS:** Light output measurements of image intensifiers and viewing boxes
- **Rad / Flu Carring Case**



MagicMaX Universal Multimeter Solution

Rad/Flu Kit VD0250122_US

Your All-In-On Dose QA Solution.

Consisting of:

- **MagicMaX Universal high-end Multimeter Solution** for all needs in beam verification; incl. advanced MagicMaX software for fast and complete dose measurement overview; Plug and Play system allows fast and seamless workflow within ONE minute setup time
- **Multidetector XR for Radiography & Fluoroscopy** Measuring values: kVp, PPV, HVL, dose, dose rate, dose per pulse, exposure time and wave form
- **MagicMaX Current Probe:** Unique invasive & non-invasive measurements of the tube current
- **Illuminance Detector MMLS:** Light output measurements of image intensifiers and viewing boxes
- **Carrying Case**



For more technical information, please see the MagicMaX family matrix at the end of the brochure!

Complete Solutions

Measuring Set IBArad/flu-L, incl. LXcan VD0250198
Complete measuring set for radiologists and hospitals with digital/conventional fluoroscopic/radiographic X-ray units.

Consisting of:

■ Test Device Primus A

Dimensions in mm: 300 x 300 x 18.5

■ Dosimeter DOSIMAX plus I

Single-channel dose meter for use in combination with Solid state detectors RQA / RQM or patient equivalent DEDX, for dose, dose rate and time measurement according IEC 61674.

■ Solid State Detector RQA

For use with MagicMaX and Dosimax plus series for dose measurements.

■ Detailed Check Instruction Fluoroscopy and Form according to DIN 6868-4, 2007

on CD

■ Stand

For test device Primus A and solid state detector DEDX

■ QC Kit IBAcAn

■ Carrying Case

Optional:

DSA Test Device

 VD0203300

(including manual and carrying case)

Mounting Frame, Primus

 VD0213104

For test devices DIGI-13 and Primus, highly recommended for use with a chest unit.

One Attenuation Body is necessary

for Primus L:

Aluminum Pre-Attenuator, 25 mm

with supporting plate VD0503200

or:

PMMA-Attenuation Body

 VD0203521

For test device Primus L.

Dimensions in mm: 300 x 300 x 31.

Consisting of: 30 mm PMMA and 1 mm Cu.



Optional Accessories:

Illuminance Detector LX-LS

 VD0602960

For measuring illuminance (lux) / ambient light of image display devices and at viewing boxes.

Tripod

 VD0610200

For measuring device LXcan, adjustable height 60 cm – 153 cm.

High Precision Mini Tripod

 VD0610210

For measuring device LXcan.

(This tripod version fits into the carrying case of QC Kit IBAcAn.)

QC Kit IBArad/flu-L

excl. LXcan

 VD0250199

Same measuring devices as order number VD0250198

"Measuring Set IBArad/flu-L", without QC Kit IBAcAn.

For luminance / illuminance measurements of your image display device, please see chapter "Quality Control at Medical Displays", page 52.

Complete Solutions

QC Kit IBArad-digital

incl. LXcan VD0250202

Complete measuring kit for quality checks in digital radiology (CR/DR) acc. to DIN 6868-13 and at image display devices according to IEC 61223-2-5, DIN 6868-157, AAPM TG18.

Consisting of:

■ Test Device DIGI-13

■ Al-Pre-Attenuator, 25 mm

With supporting plate

■ Dosimeter DOSIMAX plus I

Single-channel dose meter for use in combination with Solid state detectors RQA / RQM or patient equivalent DEDX, for dose, dose rate and time measurement according IEC 61674.

■ Solid State Detector RQA

For use with MagicMaX and Dosimax plus series for dose measurements.

■ Detailed Check Instruction and Form R-F13 on CD

■ Spot-Luminance-Meter LXcan

Incl. mask for screen contact measurements

■ Power Supply with 4 Adapters

adapters for UK / US / AU / EU

■ USB-Cable*

For automatic transfer of the measured data and for recharging batteries

■ Carrying Case

***Alternatively to USB-Cable, but exclusively for Automatic Transfer of the Measured Data:**

Interface Cable (2 m) RS 232 VD0601460

For automatic transfer of the measured data.



Optional Accessories:

Illuminance Detector LX-LS VD0602960

For measuring illuminance (lux) / ambient light of image display devices and at viewing boxes.

Tripod VD0610200

For measuring device LXcan, adjustable height 60 cm – 153 cm.

High Precision Mini Tripod VD0610210

For measuring device LXcan.

(This tripod version fits into the carrying case of QC Kit IBArad-digital.)

Mounting Frame, Primus VD0213104

For test devices DIGI-13 and Primus, highly recommended for use with a chest unit.

QC Kit IBArad-digital excl. LXcan VD0250203

Same measuring devices as order number VD0250202 "QC Kit IBArad", without Spot-Luminance-Meter LXcan, USB-cable and power supply.

For luminance / illuminance measurements of your image display device, please see chapter "Quality Control at Medical Displays", page 52.

Complete Solutions

QC Kit IBArad/flu-analog VD0250305

Complete measuring kit for QA tests at conventional radiographic and fluoroscopic X-ray units according to IEC 61223-2-1/-9/-11 and DIN 6868-2 and -3.

Consisting of:

■ Test Device ETR1

Including centering tube

Dimensions in mm: 280 x 280 x 18.5

■ Dosimeter DOSIMAX plus I

Single-channel dose meter for use in combination with Solid state detectors RQA / RQM or patient equivalent DEDX, for dose, dose rate and time measurement according IEC 61674.

■ Solid State Detector RQA

For use with MagicMaX and Dosimax plus series for dose measurements.

■ Detailed Check instruction

on CD

■ Stand for Test Device ETR1

Stand for Al-filter or DEDX; height 38.5 cm

■ Sensitometer / Densitometer DUOLIGHT

■ Power Supply

(for 110 V / 220 V DC)

Absolutely necessary for

Sensitometer/Densitometer DUOLIGHT.

■ Thermometer RT-1

(digital)

■ Carrying Case RK-1



Recommended as Attenuation Body [not included in the Set]:

Aluminum Pre-Attenuator, 25 mm VD0503200

With supporting plate.

Optional:

Mounting Frame RW-1 VD0213100

For test device DIGI-13.

Beam Alignment Test Tool – BATT VD0403850

For measuring collimator beam alignment of the central beam.

Suitable for use in combination with test devices ETR1, DIGI-13 and Primus.

Multimeter

Multimeter **MagicMaX-rad/flu/dent**

VD0201940

The flexible solution for thorough measurements at X-ray units – a new generation of measuring devices!

Features:

- USB based system to be used with PC/Laptop
- MagicMaX-Meter measurement software
- Including fixed solid state Multidetector "XR"
- Ability to attach an additional solid state detector for dose measurements
- Including robust aluminum carrying case
- Multimeter is designed according to IEC 61674 and IEC 61676

Measurement Parameters:

- Dose / dose rate
- Dose per pulse
- kVp / PPV
- Time
- Total filtration
- Half value layer (HVL)
- Waveform

Options / Additional Accessories for MagicMax "Logo" series:

Notebook / Convertable VD0201930

Instead of your own laptop.

MagicMaX Current Probe VD0201975

For use with MagicMaX for invasive and non-invasive measurements of the tube current.

Illuminance Detector MM-LS VD0201951

For use with MagicMaX.

Solid State Detector RQA VD0202850

For use with MagicMaX / Dosimax plus for dose measurements only (look page 20)

Solid State Detector RQM VD0202860

For use with MagicMaX / Dosimax plus for dose measurements only (look page 32)



Dosimeters

Dosimeter **MagicMaX-rad/flu/dent** VD0201945

According to IEC 61674; the flexible solution for thorough dose measurements at X-ray units – a new generation of measuring devices!

Features:

- USB based system to be used with PC/Laptop
- MagicMaX-Meter measurement software
- Including solid state Dose-Detector RQA
- Ability to attach an additional solid state detector for simultaneous measurements of exit and entrance dose
- Including aluminum carrying case

Measurement Parameters:

- Dose / dose rate
- Dose per pulse
- Time



Dosimeter **MagicMaX-DEDX** VD0201946

The flexible solution for smart dose measurements at X-ray units. Combines entrance dose measurement with a patient equivalent attenuator of 25mm Al.

Features:

- USB based system to be used with PC/Laptop
- MagicMaX-Meter measurement software
- Including integrated solidstate detector & 25 mm Al patient equivalent Detector DEDX
- Ability to attach an additional solid state detector for simultaneous measurements of exit and entrance dose
- Including aluminum carrying case

Measurement Parameters with Detector DEDX:

- Dose: 20 μ Gy - 9999 mGy
- Dose rate: 20 μ Gy/s - 400 mGy/s
- Time: 1 ms - 19999 s



Options / Additional Accessories:

Notebook / Convertable VD0201930

Instead of your own laptop.

Solid State Detector RQA VD0202850

For use with MagicMaX for dose measurements only.

Solid State Detector RQM VD0202860

For use with MagicMaX for dose measurement only.

(look page 32 Mammography)

For more technical information, please see the MagicMaX family matrix at the end of the brochure!

Dosimeters

Dosimeter Dosimax plus A

(basic unit) VD0201747, Detector RQA VD0202850

PTB-approved single-channel dosimeter according to IEC 61674, designed for acceptance tests and for quality checks at radiographic, fluoroscopic, dental and mammographic X-ray units.

In Rad/Flu for use with solid state detector RQA.

Measurement Parameters with Detector RQA:

- Dose: 200 nGy - 9999 mGy
- Dose rate: 80 nGy/s - 70 mGy/s (50 - 150 kV)
- Time: 1 ms - 19999 s

Options / Additional Accessories:

Carrying Case VD0225720

For dosimeter DOSIMAX plus series; offers space for 1 DOSIMAX plus and 2 solid state detectors (not DEDX/DE2DX).



Dosimeter DOSIMAX plus I,

(basic unit) VD0201748

Single-channel dose meter for use in combination with Solid state detectors RQA / RQM or patient equivalent DEDX, for dose, dose rate and time measurement according IEC 61674.

Measurement Parameters with Detector RQA:

- Dose: 200 nGy - 9999 mGy
- Dose rate: 80 nGy/s - 70 mGy/s (50 - 150 kV)
- Time: 1 ms - 19999 s

Measurement Parameters with Detector DEDX:

- Dose: 20 µGy - 9999 mGy
- Dose rate: 20 µGy/s - 400 mGy/s
- Time: 1 ms - 19999 s

Option / Additional Accessory:

Carrying Case VD0225720

For dosimeter DOSIMAX plus series; offers space for 1 DOSIMAX plus and 2 solid state detectors (not DEDX/DE2DX).



The dosimeters DOSIMAX plus A and DOSIMAX plus I are medical devices [according to the directive 93/42/EEG] of class I m / 12.

kV-Meter

kV-Meter **MagicMaX**-rad/flu/dent

VD0201948

The flexible solution for thorough measurements at X-ray units – a new generation of measuring devices!

Features:

- USB based system to be used with PC/Laptop
- MagicMaX-Meter measurement software
- Including solid state kV-detector
- Including aluminum carrying case

Measurement Parameters:

- PPV / kVp
- Time
- Total filtration
- Half value layer (HVL)

Option / Additional Accessory:

Notebook / Convertible VD0201930

Instead of your own laptop.



For more information, please see the MagicMaX family matrix at the end of the brochure!

Detectors

MagicMaXUniversal Multi Detector XR VD0202030

Multidetektor is to be used with the MagicMaX Universal in kV a range of 40 - 150kV. The small footprint detector has 2 marked active areas, one for dose, dose rate, dose/puls and time and the other one for kVp, PPV, Half Value Layer, total filtration.

Size: 20 x 52 x 10



Detectors

Solid State Detector RQA VD0202850

For quality checks and acceptance tests at radiographic, fluoroscopic and dental X-ray units, 50 - 150 kV.

Solid State Detector DEDX VD0202100

Integrated in the patient equivalent attenuator, consisting of 25 mm Al, incl. one additional 1 mm Cu-filter for quality checks at radiographic and fluoroscopic X-ray units, 50 - 150 kV.

Size: 169 x 176 mm

Length of detector cables: 2 m.

MagicMaX-Current Probe VD0201975

For invasive and non-invasive measurements of the tube current in combination with the MagicMaX and MagicMaX *Universal* Multimeters.

Features:

- Unique combination of invasive and non-invasive
- Comprehensive analysis with MagicMaX-Meter software
- Convenient selection of measurement range

Benefits:

- All in one device
- Cost efficient solution
- Workflow convenience

MagicMaX Illuminance Detector MM-LS

VD0201951

For illuminance measurement in combination with MagicMaX.

Measurement can triggered at the detector for multiple measurements at viewing boxes. The Detector can also be used for continuous measurements for image intensifier light-output measurements.



Detector RQA

Detector DEDX



Test Devices

Test Device Primus A [standard model] VD0203650

For quality checks at digital & conventional radiographic and fluoroscopic X-ray units according to DIN 6868-150 and DIN 6868-4.

Test Parameters:

- Spatial resolution
- Contrast resolution
- Alignment of light and X-ray field
- Geometry symmetry
- Image scale dimensions in mm: 300 x 300 x 18.5

An Attenuation Body is necessary, if no Solid State Detector DEDX is available:

Aluminum Pre-Attenuator VD0503200

25 mm with supporting plate or

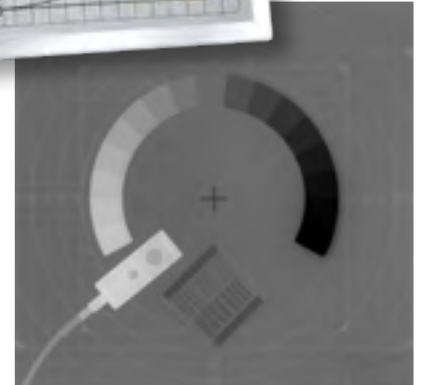
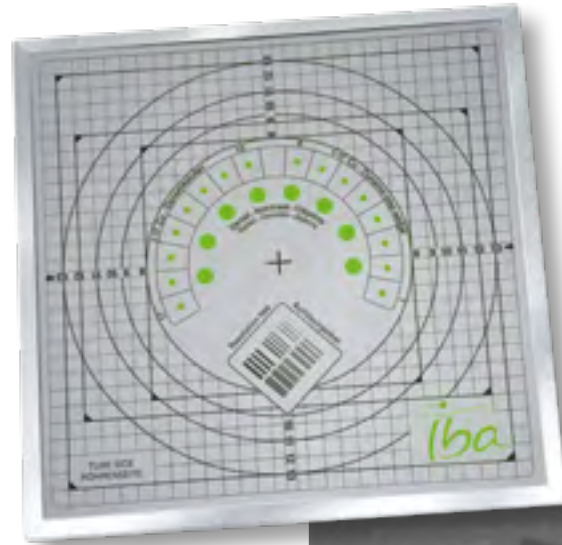
PMMA-Attenuation Body VD0203521

Consisting of 30 mm PMMA and 1 mm Copper.

Option / Additional Accessory:

Stand for Test Device Primus / Digi 13 VD0212170

Mounting Frame for Primus VD0213104



For more information see chapter "Accessories for Radiology".

Test Device DVT^{3D} VD0203660

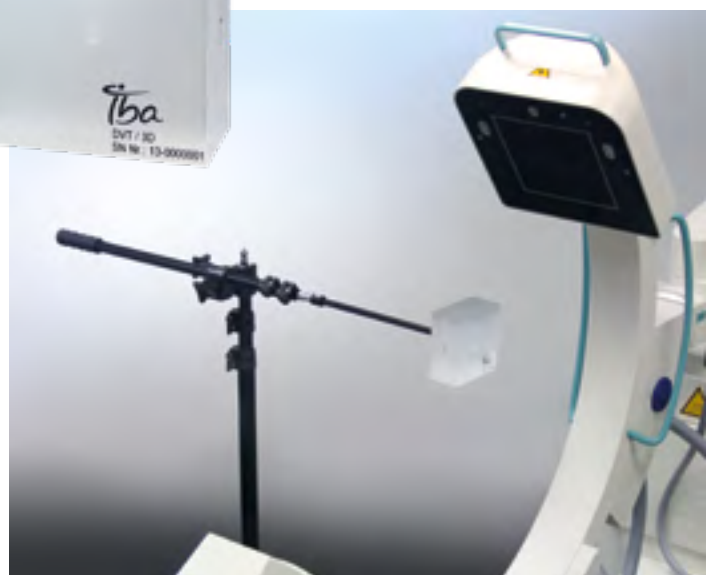
For quality checks in 3D digital volume tomography according to DIN 6868-150 and DIN 6868-4.

Specifications:

- Quality check in 3D image quality with contrast/spatial resolution, iso center coincidence, noise and uniformity.
- Laser marks for easy positioning of the test device in the Isocenter
- Contrast/ Spatial resolution [1.3 - 1.0 - 0.8 - 0.7 - 0.6 - 0.5 mm]
- Dimension: 120x120x60 mm

Option / Additional Accessory:

- **Stand for DVT Test Device** VD0203664



Test Devices

Test Device DIGI-13 VD0203560

For quality checks at all types of CR/DR radiographic systems.

Test Parameters:

- Homogeneity
- Spatial and contrast resolution
- Alignment of light and X-ray field
- Image scale
- Artifacts
- Geometry symmetry

An Attenuation Body is necessary, if no Solid State Detector DEDX is available:

Aluminum Pre-Attenuator VD0503200

25 mm with supporting plate (absolutely necessary in case of using the test device DIGI-13).



Option / Additional Accessory:

Stand for Test Device Primus / Digi 13 VD0212170

For more information see chapter "Accessories for Radiology".

Test Device ETR1 incl. Centering Tube VD0203100

For quality checks in conventional (analog / film-based) radiography according to DIN 6868-3.

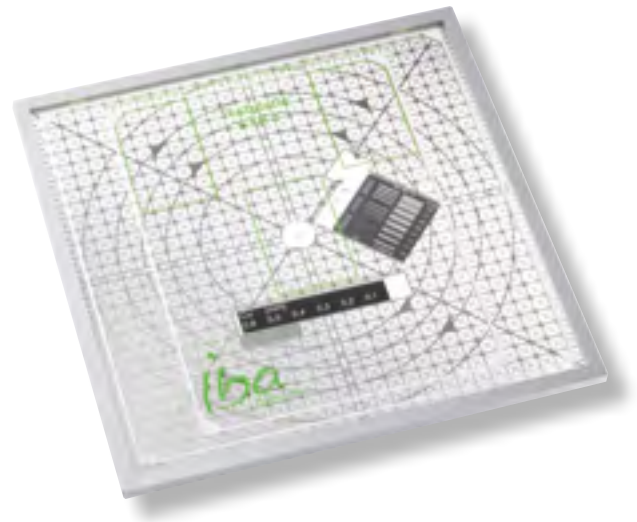
Test Parameters:

- Spatial resolution
- Alignment of light and X-ray field
- Geometry symmetry
- Contrast resolution
- Measuring areas for optional density

Option / Additional Accessory:

Stand for Test Device ETR1 VD0212160

For more information see chapter "Accessories for Radiology".



DSA Test Device incl. Carrying Case VD0203300

For quality tests in digital subtraction angiography (IEC 61223-3-3, DIN 6868-150 and DIN 6868-4).

Test Parameters:

- Dynamic range
- DSA contrast sensitivity
- Artifacts
- Logarithmic check



Test Devices

Contrast-Detail-Phantom CD DISC 2.0 VD0203720

(including carrying case)

For quality control in radiology, considering the perception by the observer. Especially designed for evaluating fluoroscopic X-ray units.

Test Parameters:

- Contrast resolution
- Spatial resolution
- Optimization, evaluation and comparison of different fluoroscopic systems
- Determination of the optimum exposure technique
- Evaluation of the image quality versus dose relation



Contrast-Detail-Phantom CDRAD VD0203750

(including analyzer-software and carrying case)

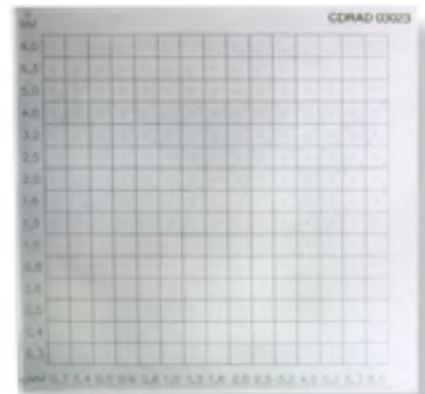
For quality control in radiography.

Monitoring of Image Information Content:

- Contrast-Detail curve/detectability
- Tests low contrast and spatial resolution

Test Parameters:

- Contrast and spatial resolution
- Optimization, evaluation and comparison of different radiologic systems
- Determination of the optimum exposure technique and background density
- Comparison of image quality at various thicknesses of PMMA
- Evaluation of the image quality versus dose relation



Four different versions available.
With aid of the accurate and easy to use analyser software quality reports can be generated.

Test Device FFA 4090 R VD0203291

For checking the film-screen contact at radiographic cassettes according to ISO 4090.

Internal dimensions without frame in cm: 42 x 49 x 0.7.

External dimensions including the frame in cm: 44 x 51 x 0.9.

BATT – Beam Alignment Test Tool VD0403850

Verifies that the angular alignment of the central beam is perpendicular to the image receptor. (Recommended in combination with test devices DIGI-13, ETR1 and Primus.)



Test Devices

Test Device Set LiRa

[Collimator / Beam Alignment Test Tool] VD0403865

- Verification of the proper alignment of the collimator light field with the X-ray field
- Verification of the central beam alignment (perpendicular to the image receptor)

Consisting of:

- Test device Primus A
(Please see page 10 for more information)
- Beam Alignment Test Tool (Please see above)

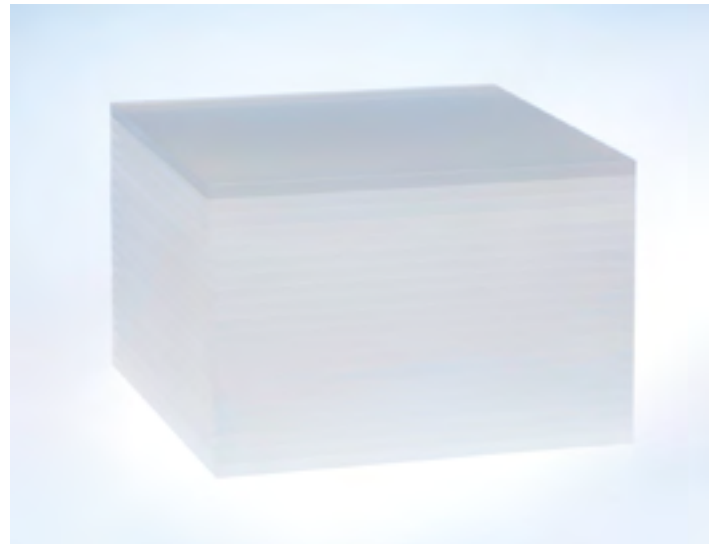


Test Set AEC-Systems for Radiography VD0203800

Set of PMMA-slabs for checking the Automatic Exposure Control. For X-ray units working in the range of 40 - 150 kV according to IEC 61223-3-1.

Set consisting of:

- 3 PMMA slabs, dimensions in mm: 240 x 240 x 50
- 2 PMMA slabs, dimensions in mm: 240 x 240 x 20
- 1 PMMA slab, dimensions in mm: 240 x 240 x 10
- 1 Al slab, dimensions in mm: 240 x 240 x 25

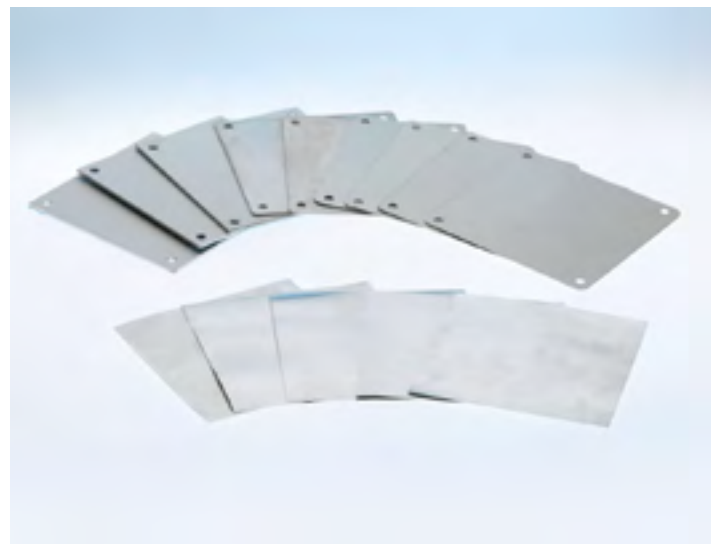


HVL Aluminum Filter Set for Radiography VD0403320

Aluminum attenuator set for HVL measurements at radiographic X-ray units working in the range of 40 - 150 kV. Dimensions: 100 mm x 100 mm each. Purity of Al: 99.5 %.

Set consisting of:

- 5 filter plates of 0.1 mm Al
- 2 filter plates of 0.5 mm Al
- 5 filter plates of 1.0 mm Al
- 2 filter plates of 2.0 mm Al



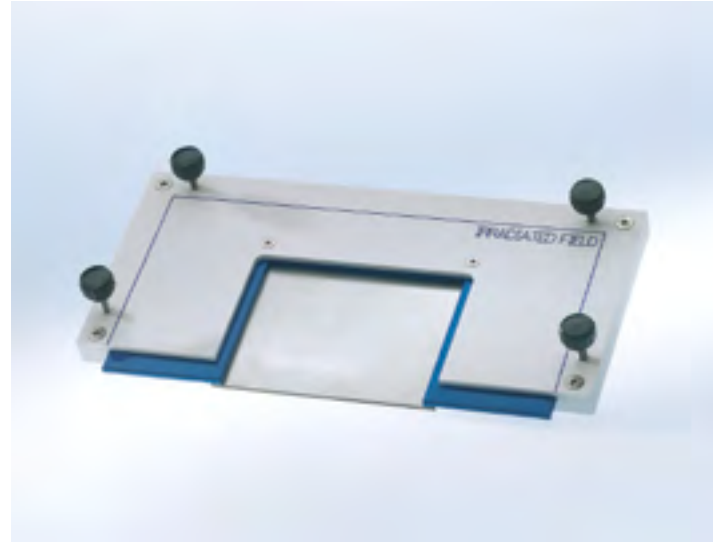
Test Devices

Tungsten Edge Test Device TX 5 VD0203580

For determination of modular transfer function (MTF). According to IEC 62220-1.

Consisting of:

- 1 mm thick tungsten plate, edge $\pm 5\mu\text{m}$, fixed on a 3 mm thick lead plate



Software

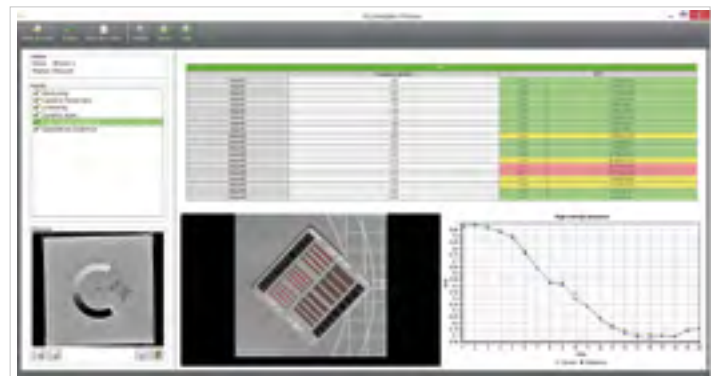
IQ Analyzer Primus VD0203530

Software which performs quality checks on images taken with Primus in three simple steps: Select - Analyze - Results.

The IQ Analyzer Primus can perform automatic, fast, quantitative and reproducible constancy measurement on multiple imaging modalities.

Specifications:

- Automated analyze of DICOM images from various modalities, including CR, DR, DX, XA and RF systems.
- Efficient selection of DICOM images through easy menu
- Automated analyze of Image Quality by determining: Positioning, SNR, dynamic, distortion and resolution (MTF)
- Generate reports and archive in both PDF and Microsoft® Excel® formats



Technical Specifications / System requirements:

- Processor : Intel® Core 2 Duo
- Memory : 1 Go DDRAM
- Minimum screen resolution : 1024*768
- Windows based system [XP, Vista, 7, 8]



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QUALITY CONTROL IN MAMMOGRAPHY

PROTECT +
ENHANCE +
SAVE LIVES

Complete Solutions

MagicMaX^{Universal} Mammo Case VD0250123

Your All-In-One Dose & Image QA Solution.

Consisting of:

- **MagicMaX^{Universal} high-end Multimeter Solution** for all needs in beam verification; Incl. advanced MagicMaX software for fast and complete dose measurement overview; Plug and Play system allows fast and seamless workflow within ONE minute setup time
- **Multidetector XM for Mammography** Measuring values: kVp, PPV, HVL, dose, dose rate, dose per pulse, exposure time and wave form*
- **Test device MAM 162** Test phantom for image QA at digital Mammorapy systems
- **Illuminance Detector MM-LS** Light output measurements of image intensifiers and viewing boxes
- **Carrying Case Mam**



MagicMaX^{Universal} Multimeter Solution Mammo Kit VD0250123_US

Your All-In-One Dose QA Solution.

Consisting of:

- **MagicMaX^{Universal} high-end Multimeter Solution** for all needs in beam verification; Incl. advanced MagicMaX software for fast and complete dose measurement overview; Plug and Play system allows fast and seamless workflow within ONE minute setup time
- **Multidetector XM for Mammography** Measuring values: kVp, PPV, HVL, dose, dose rate, dose per pulse, exposure time and wave form*
- **Illuminance Detector** Light output measurements of image intensifiers and viewing boxes
- **Carrying Case**



For more technical information, please see the MagicMaX family matrix at the end of the brochure!

*For the following Target-Filter-Combinations: Mo/Mo, Mo/Rh, Rh/Rh, W/Rh, W/Ag.

Complete Solutions

QC Kit IBAmam-analog VD0250373

Complete measuring kit for quality checks at conventional mammographic installations according to DIN 6868-7 / DIN 6868-152 / EPQC (EUREF).

Consisting of:

- **Test Device Mammo-152**
Dimensions in mm: 180 x 240
- **Dosimeter DOSIMAX plus I**
(basic unit)
- **Detector RQM**
For mammographic installations
- **Magnifying Glass**
For 8-fold magnification
- **Foam Material Cuboid**
For checking the compression pressure
- **Carrying Case**

Additional Accessory:

Test Device FFA 4090 M VD0203281

For checking the film-screen contact in mammography – ISO 4090.



Option:

MagicMax Universal with XM Detector (instead of Dosimax plus)

Measuring Set IBAmam-digital according to PAS 1054 VD0250155

Complete measuring set for constancy tests at digital mammographic installations according to PAS 1054.

Consisting of:

- **Test Device PASMAM 1054 C**
Incl. carrying case
- **Dosimeter DOSIMAX plus I**
(basic unit)
- **Detector RQM**
For mammographic installations
- **Carrying Case for Dosimeter DOSIMAX plus Series**
Offers space for 1 DOSIMAX plus and 2 solid state detectors (not DEDX/DE2DX)

Optional:

Contrast-Detail-Phantom CDMAM VD0203701

With software, incl. carrying case



For luminance / illuminance measurements of your image display device, please see chapter "Quality Control at Medical Displays", page 52.

Multimeter

Multimeter **MagicMaX-mam**

VD0201970

The flexible solution for thorough measurements at X-ray units – a new generation of measuring devices!

Features:

- USB based system to be used with PC/Laptop
- MagicMaX-Meter measurement software
- Including fixed Multimeter detector XM
- Possibility to connect additional solid state detectors for dose measurements
- Including aluminum carrying case
- Multimeter is designed according to IEC 61674 and IEC 61676

Measurement Parameters*:

- Dose / Dose rate
- Dose per pulse
- kVp / PPV
- Time
- Total filtration
- Half value layer (HVL)
- Waveform

Options / Additional Accessories:

Notebook / Convertable VD0201930

Instead of your own laptop.

Current Probe VD0201975

For use with MagicMaX for invasive and non-invasive measurements of the tube current.

Illuminance Detector [Ix] VD0201951

For use with MagicMaX.

Solid State Detector RQM VD0202860

For use with MagicMaX.

Solid State Detector RQA VD0202850

For use with MagicMaX.

Also available as:

MagicMaX-Universal with XM Detector



For more technical information, please see the **MagicMaX family matrix** at the end of the brochure!

*For the following Target-Filter-Combinations: Mo/Mo, Mo/Rh, Rh/Rh, W/Rh, W/Ag.

Dosimeters

Dosimeter **MagicMaX-mam** VD0201955

According to IEC 61674; the flexible solution for thorough measurements at X-ray units – a new generation of measuring devices!

Features:

- USB based system to be used with PC/Laptop
- MagicMaX-Meter measurement software
- Including solid state Dose-Detector RQM
- Ability to attach an additional solid state detector for simultaneous measurements of exit and entrance dose
- Including aluminum carrying case

Measurement Parameters:

- Dose / Dose rate
- Dose per pulse
- Time

Options / Additional Accessories:

Notebook / Convertible VD0201930

Instead of your own laptop.

Solid State Detector RQA VD0202850

For use with MagicMaX.



For more technical information, please see the **MagicMaX family matrix at the end of the brochure!**

Dosimeter **Dosimax plus A**

[basic unit] VD0201747, Detector RQM VD0202860

PTB-approved single channel dosimeter according to IEC 61674, designed for acceptance tests and for quality checks at radiographic, fluoroscopic, dental and mammographic X-ray units.

In Mammo for use with solid state detector RQM.

Measurement Parameters with Detector RQM:

- Dose: 500 nGy - 9999 mGy
- Dose rate: 1.5 μ Gy/s - 300 mGy/s
- Time: 1 ms - 19999 s

Options / Additional Accessories:

Carrying Case VD0225720

For dosimeter DOSIMAX *plus* series; offers space for 1 DOSIMAX *plus* and 2 solid state detectors (not DEDX/DE2DX).



Dosimeters

Dosimeter DOSIMAX plus I,

[basic unit] VD0201748, Detector RQM VD0202860

Single-channel dosimeter for QA tests at radiographic, fluoroscopic and mammographic X-ray units. In Mammo for use with the appropriate solid state detector (RQM).

Measurement Parameters with Detector RQM:

- Dose: 500 nGy - 9999 mGy
- Dose rate: 1.5 μ Gy/s - 300 mGy/s
- Time: 1 ms - 19999 s

Options / Additional Accessories:

Carrying Case VD0225720

For dosimeter DOSIMAX plus series; offers space for 1 DOSIMAX plus and 2 solid state detectors (not DEDX/DE2DX).



The dosimeters DOSIMAX plus A and DOSIMAX plus I are medical devices [according to the directive 93/42/EWG] of class I m / 12.

kV-Meter

kV-Meter MagicMaX-mam VD0201958

The flexible solution for thorough measurements at X-ray units – a new generation of measuring devices!

Features:

- USB based system to be used with PC/Laptop
- MagicMaX-Meter measurement software
- Including solid state kV-detector
- Including aluminum carrying case

Measurement Parameters:

- PPV / kVp
- Time
- Total filtration
- Half value layer (HVL)
- Waveform

Option / Additional Accessorie:

Notebook / Convertable VD0201930

Instead of your own laptop.



For more technical information, please see the MagicMaX family matrix at the end of the brochure!

Detectors

MagicMaX *Universal* Multi Detector XM VD0202040

Multidetektor is to be used with the MagicMaX Universal in kV a range of 21 - 49 kV and for following Target-Filter Combinations: Mo/Mo, Mo/Rh, Rh/Rh, W/Rh, W/Ag.

The small footprint detector has 2 marked active areas, one for dose, dose rate, dose/puls and time and the other one for kVp, PPV, Half Value Layer, total filtration.

Size: 20 x 52 x 10



Solid State Detector RQM VD0202860

For quality checks and acceptance tests in mammography, 25 - 35 kV.

Length of detector cable: 2 m.



MagicMaX - Current Probe VD0201975

For invasive and non-invasive measurements of the tube current in combination with the MagicMaX and MagicMaX *Universal* Multimeters.

Features:

- Unique combination of invasive and non-invasive
- Comprehensive analysis with MagicMaX-Meter software
- Convenient selection of measurement range

Benefits:

- All in one device
- Cost efficient solution
- Workflow convenience



MagicMaX Illuminance Detector MM-LS VD0201951

For illuminance measurement in combination with MagicMaX.

Measurement can triggered at the detector for multiple measurements at viewing boxes. The Detector can also be used for continuous measurements for image intensifier light-output measurements.



Test Devices

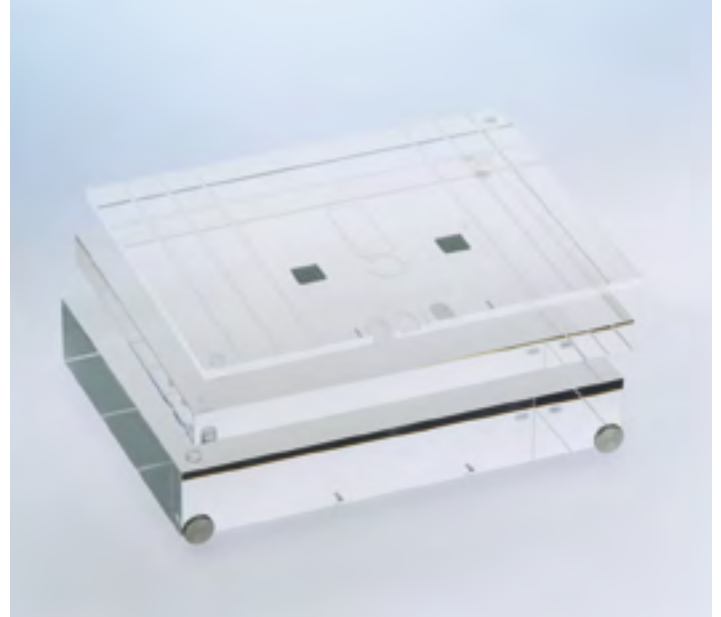
Test Device Mammo-152 VD02034343

(including carrying case)

For acceptance and constancy tests (DIN V 6868-152, DIN EN 61223-3-2 and DIN 6868-7 / EPQC (EUREF) in conventional mammography.

Test Parameters:

- Object thickness and tube voltage compensation resp. AEC reproducibility
- Attenuation factor
- Spatial resolution
- Contrast and image resolution
- Artifacts
- Geometry
- Check of missed tissue at chest wall



Contrast-Detail-Phantom CDMAM 4.0 VD0203701

- Optimized for European Guidelines for Quality Assurance in Digital Mammography 4th edition.
- Gold discs are placed in the area of interest of the psychometric curve
- Improved specifications based on highly accurate production processes
- Developed as a result of both customer feedback and customer requirements

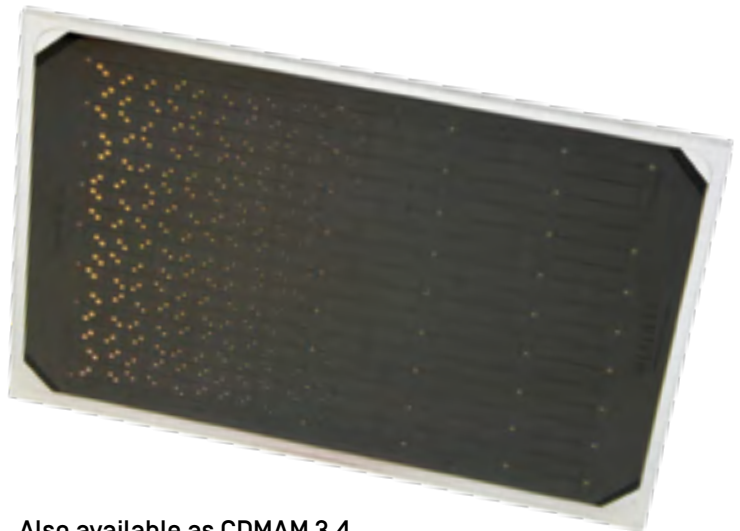
Consisting of:

- 0,5 mm Polished Aluminum [99,5%] base plate with 672 pure gold disc with 21 different diameters [0.08 ... 2.0 mm; +0.005 [Mean + 2SD]] and 16 different thickness [0.012 μ m ... 2.8 μ m; +3% [Mean + 2SD]], covered by a PMMA plate 240 * 162 * 3 mm
- 4 x 10 mm (\pm 0,1 mm) polished PMMA plates
- CDMAM 4.0 Analyser software based on EUREFs CDCOM for CDMAM 4.0.
- Carrying case

Option / Additional Accessory:

PMMA Spacer Set VD0203782

10 pieces of spacers 180 x 15 mm, with the following thicknesses 10, 8, 5 und 2 mm.



Also available as CDMAM 3.4 on request.

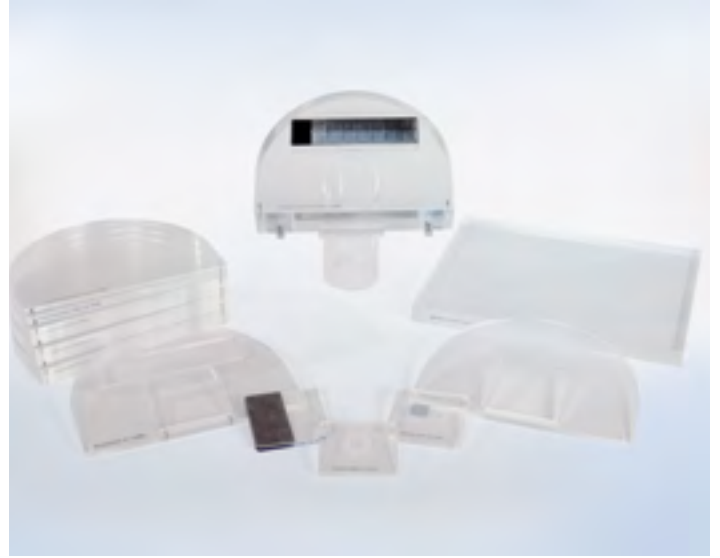
Test Devices

Test device MAM-162 VD0203741

For **acceptance tests** of digital mammography systems, according DIN 6868-162.

Consisting of:

- 40 mm base plate with integrated Al step wedge (14 steps from 0 - 5.2 mm) and 2 rows of steel balls for checking the image limitations towards the thorax side
- 6 mm structural plate for test inserts and 2 rows of steel balls with recess of 80 mm x 80 mm
- PMMA test insert with square marking
- Test insert SDNR (Signal Difference-to-Noise Ratio)
- Test insert HK (High contrast)
- 3 x 20 mm PMMA attenuator semi-circle 3x 20 mm, 1 x 10 mm, 1 x 4 mm
- 1 x 20 mm (+/-0,3mm) PMMA Attenuation Body (320 x 260 x 20 mm)
- Carrying case



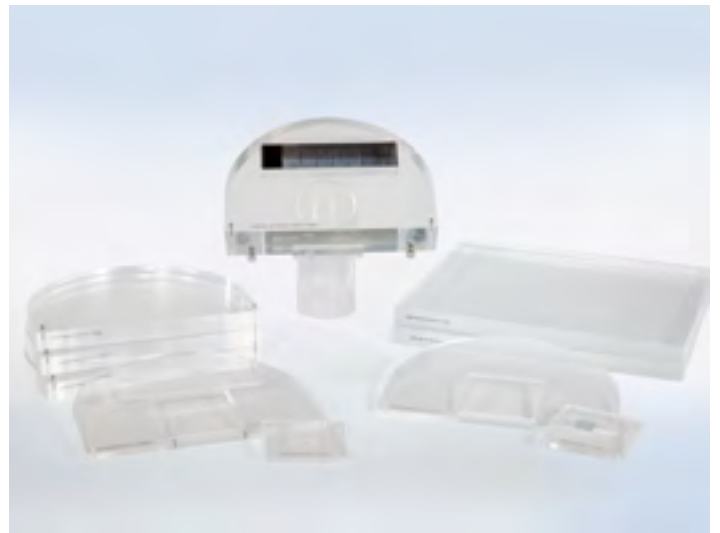
For luminance / illuminance measurements of your image display device, please see chapter "Quality Control at Medical Displays", page 52.

Test device MAM-14 VD0203623

For **constancy check** of digital mammography systems, according DIN 6868-14.

Consisting of:

- 40 mm base plate with integrated Al step wedge
- 6 mm structural plate with recess for test insert and Al-Step wedge and 2x 5 steel balls for checking the image limitations towards the thorax side
- 6 mm PMMA with recess for test inserts
- PMMA attenuator semicircle 2 x 20 mm (+/-0.3mm); 2 x 10mm (+/- 0.3mm)
- 2 x 20 mm (+/-0,3mm) PMMA attenuation plate (260 x 320 mm)
- Test insert PMMA
- Test insert SDNR (Signal Difference-to-Noise Ratio)
- Carrying case



For luminance / illuminance measurements of your image display device, please see chapter "Quality Control at Medical Displays", page 52.

Test Devices

Test device PASMAM 1054 C VD0203715

For **constancy tests / quality checks** of mammographic equipment according PAS 1054.

Consisting of:

- 40 mm base plate with integrated Al step wedge with 14 steps from 0 to 5.2 mm and 2 rows of steel balls for checking the image limitations towards the thorax side
- 6 mm structural plate with recess for test inserts, 2 rows of steel balls with integrated turnable resolution test in line groups of 5, 6, 7, 8 and 10 lp/mm
- PMMA-test insert with square marking
- Test insert for constancy tests – ACR
- Test insert high contrast resolution
- Test insert contrast to noise ratio
- Attenuation body 2 x 20 mm
- Attenuation body 2 x 10 mm
- Carrying case



For luminance / illuminance measurements of your image display device, please see chapter "Quality Control at Medical Displays", page 52.

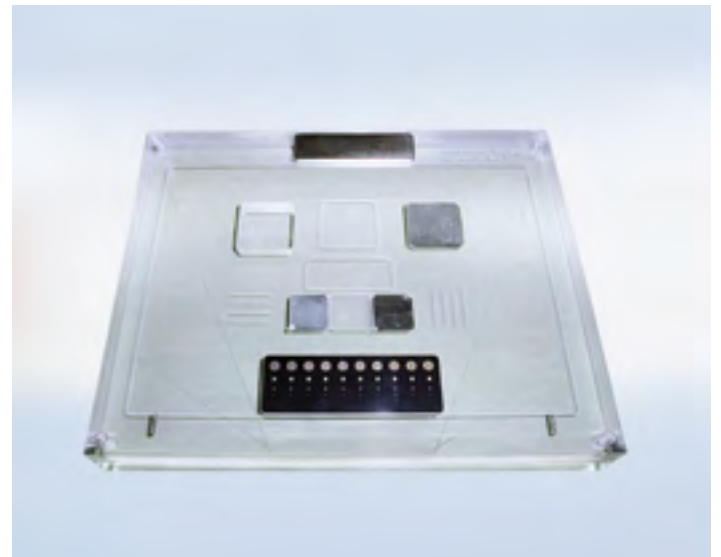
DIGIMAM Phantom VD0203760

(including carrying case)

For assessment of digital mammography. The phantom complies with the European Guidelines for Quality Assurance in digital Mammography Screening.

Test Parameters:

- Contrast detail analysis
- Geometry
- Quick check of bad columns
- CNR measurement
- SNR measurement (reference point)
- Check of missed tissue at chest wall
- Check of dynamic range in three types of tissue



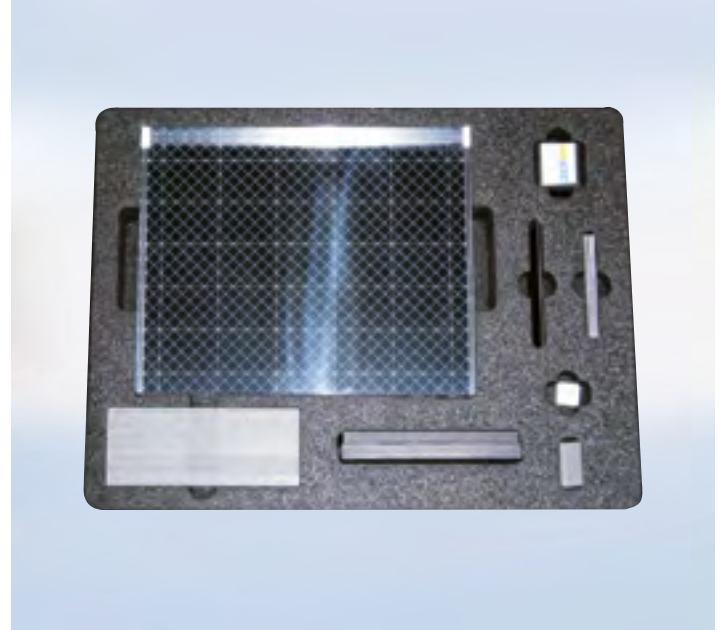
Test Devices

EU Test Set VD0203785

Complete phantom test set for digital mammography.
For type testing and testing according to EUREF protocol.

Consisting of:

- Homogeneous Phantom
- PMMA plates, 8 pcs. (180 x 240 x 75)
- Stainless steel plate
- MTF tool of stainless steel and Al plate
- X-ray ruler set, 4 pcs.
- PMMA spacer set, 10 pcs.
- Geometric Distortion Phantom
- Al Foil Set
- Lead plate set, 4 pcs.
- PMMA plate set, 10 pcs. (40 x 20 x 20)
- Carrying case



Test device FFA 4090 M VD0203281

For checking the film-screen contact
at mammographic cassettes according to ISO 4090.
Consisting of a fine metal wire grid, which is inserted in
2 plates of acryl.
For checking cassettes of a size up to 24 cm x 30 cm.

Specifications:

- Dimensions in cm: 31.5 x 25.5 x 0.7
[internal dimensions without frame]
- Dimensions in cm: 33.5 x 27.5 x 0.9
[external dimensions with frame]



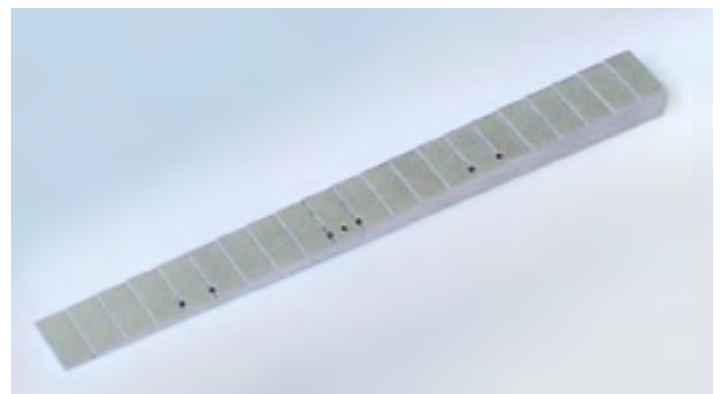
Mammographic Step Wedge VD0203602

Specifications:

- 21 steps (Al)
- Dimensions in mm: 10 x 6.3 x 105

Test Parameters:

- Sensitometric curve shape
- Geometry
- Speed
- Mid-gradient



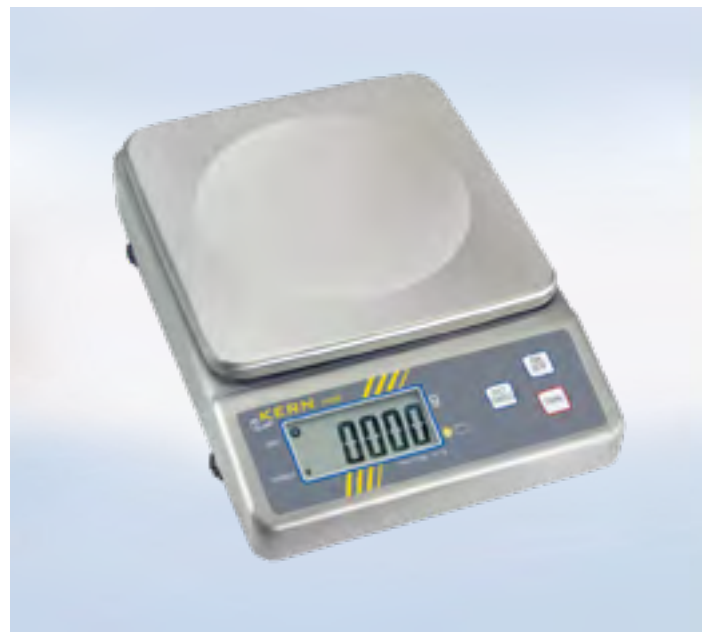
Test Devices

Breast Compression Test Device for Mammography VD0203480

For measurement of constancy and accuracy of the compression of mammography units, as described in the "European Guidelines for quality assurance..." for the annual test.

Specifications:

- Measuring range: 200 g - 25 kg
- Resolution of LCD: 10 g

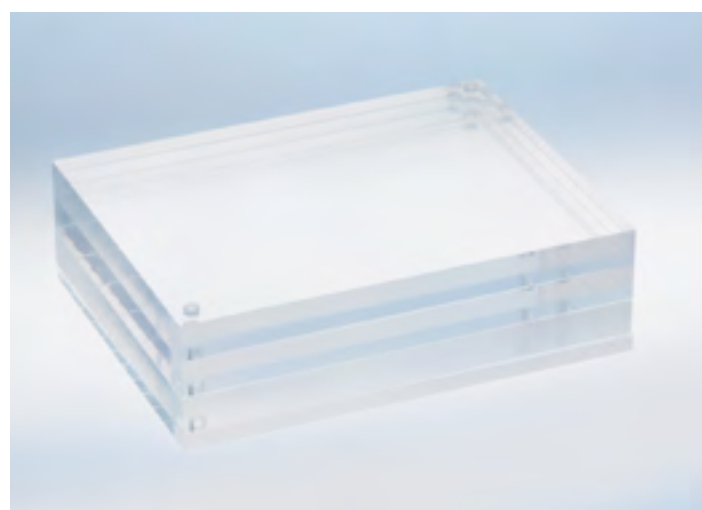


Test set AEC-Systems for Mammography VD0203810

Set of PMMA-slabs for checking the Automatic Exposure Control.

Consisting of:

- 3 PMMA slabs, dimensions in mm: 180 x 240 x 20
- 1 PMMA slab, dimensions in mm: 180 x 240 x 10



HVL Aluminum Filter Set for Mammography VD0403310

For determination of half value layer in mammography.

Specifications:

- Dimensions in mm: 100 x 100 each
- Purity of Al: 99.9 %

Consisting of:

- 7 filter plates of 0.1 mm Al





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QUALITY CONTROL IN COMPUTED TOMOGRAPHY

PROTECT +
ENHANCE +
SAVE LIVES

Complete Solution

MagicMaX *Universal* CT Case VD0250124

Your complete solution for CTDI measurements.*

Consisting of:

- **MagicMaX *Universal* Multimeter**
with integrated high voltage module for Ionization Chambers
- **DCT10-MM**
CT Ionization Chamber 10 cm
- **3-Part PMMA CT Phantom**
for dose measurements
(set for adults & pediatric)
- **Illuminance Detector**
For use with MagicMaX *Universal*;
Measurement range 1 – 10,000 lx
- **Trolley Case for convenient transportation**

Optional devices:

- **DCT30-MM** VD1020302
CT Ionization Chamber 30cm for wide beam CT's
- **Multidetector XR for CT in tomo mode**
[non-rotational] VD0202030
for PPV/kV measurements in CT



*MagicMax Universal Cases are preconfigured to meet all standard QC needs. Optional tools for additional applications are available.

Complete Solutions

QC Kit IBAct pediatric VD1050103

Adult Head & Body / Pediatric Head & Body

Complete measuring kit for CTDI measurements at all types of CT scanners.

Consisting of:

- **3-part Modular PMMA CT-Phantom for Dose Measurements**
Adult head & body / pediatric head & body
- **Dosimeter Dosimax plus A HV**
With internal high voltage supply for use with ionization chamber DCT10-RS
- **Ionisation Chamber DCT10-RS / Lemo**
- **Extension Cable, 8 m**
- **Specialist Booklet "Radiation Exposure in Computed Tomography"**
- **Carrying Case**
With removable trolley



QC Kit IBAct Standard VD1050102

Adult Head & Body

Complete measuring kit for dose measurements in computed tomography according to IEC 60601-2-44, IEC 61223-2-6, -3-5.

Consisting of:

- **2-parted Modular CT-Phantom for Dose Measurements**
Adult head & body
- **Dosimeter Dosimax plus A HV**
With internal high voltage supply for use with ionization chamber DCT10-RS
- **Ionisation Chamber DCT10-RS / Lemo**
- **Extension Cable, 8 m**
- **Specialist Booklet "Radiation Exposure in Computed Tomography"**
- **Carrying Case**
With removable trolley



For luminance / illuminance measurements of your image display device, please see chapter "Quality Control at Medical Displays", page 52.

Multimeter

MagicMaX^{Universal} Multimeter CT Kit

VD0250126_US

Your All-In-One Dose QA Solution.*

Consisting of:

- **High-end Multimeter Solution**
 for all needs in beam verification;
 incl. advanced MagicMaX software for fast and complete dose measurement overview;
 Plug and Play system allows fast and seamless workflow within ONE minute setup time
- **DCT10-MM**
 CT Ionization Chamber 10 cm
- **Multidetector XR for CT in tomo mode [non-rotational], Radiography & Fluoroscopy**
 Measuring values: kVp, PPV, HVL, dose, dose rate, dose per pulse, exposure time and wave form
- **Illuminance Detector**
 Light output measurements of image intensifiers and viewing boxes
- **Carrying Case**

Optional devices:

- **DCT30-MM** VD1020302
 CT Ionization Chamber 30cm for wide beam CT's
- **Multidetector XR for CT in tomo mode [non-rotational]**
 for PPV/kV measurements in CT



*MagicMax Universal Cases are preconfigured to meet all standard QC needs. Optional tools for additional applications are available.

Dosimeter

Dosimeter Dosimax plus A HV

(basic unit) VD0201790

PTB-approved single channel dosimeter with internal high voltage supply according to IEC 61674 for use with ionization chamber DCT10-RS. Designed for measurements at CT.

Measurement Parameters:

- Dose length product:
100 μGycm - 999 Gycm
- Dose length product rate:
1 mGycm/s - 0.5 Gycm/s
- Time: 1 ms - 19999 s

Options / Additional Accessories:

Conformance statement VD0201965_KON

Conformance statement for German acceptance tests.

Carrying Case VD0225720

For dosimeter DOSIMAX *plus* series;
Offers space for 1 DOSIMAX *plus* and
1 ionization chamber.



Ionisation Chambers

Ionization Chamber DCT10 VD1020100

For DLP (in mGy*cm) and CTDI measurements at CT scanners, according to IEC 61223-2-6, -3-5, 100 - 150 kV.

For use with

- MagicMaX Universal → DCT10-MM: VD1020110
- Dosimax plus A HV → DCT10-RS: VD1020100.

Specifications:

- Active length: 100 mm
- Length of chamber cable: 2 m

Ionization Chamber DCT30-MM VD1020302

Ionization chamber to be used with MagicMaX Universal for DLP [mGycm] and dose [mGy] measurements for calculating CTDI at wide beam CT's.

Specification:

- Active length: 300 mm
- Length of chamber cable: 2 m



MagicMaX Universal Multi Detector XR VD0202030

Multidetektor is to be used with the MagicMaX Universal in kV a range of 40 - 150kV. The small footprint detector has 2 marked active areas, one for dose, dose rate, dose/puls and time and the other one for kVp, PPV, Half Value Layer, total filtration.

Size: 20 x 52 x 10



Software

Software CT QALite VD0010140

- Fast, automated CT analysis for routine QA or extensive performance evaluation
- User friendly Windows interface
- Comprehensive image parameter trend analysis



Test devices

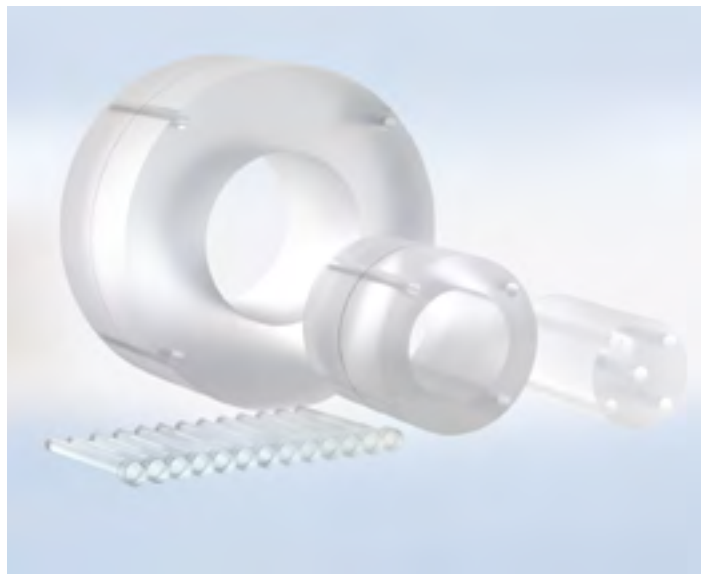
3-part PMMA CT-Phantom

Adult Head & Body / Pediatric Head & Body VD1003105

Innovative 3-part nested PMMA phantom for CTDI measurements. Designed to image pediatric and adult head and body in accordance with FDA performance standard for diagnostic X-ray systems [21CFR 1020.33].

Consisting of:

- 1 pediatric head phantom, 10 cm diameter, 5 holes
- 1 adult head-/pediatric body phantom, 16 cm diameter, 4 holes
- 1 adult body annulus, 32 cm diameter, 4 holes
(The above-mentioned 3 phantoms fit into each other!)
- 13 acrylic rods for plugging all the phantom holes



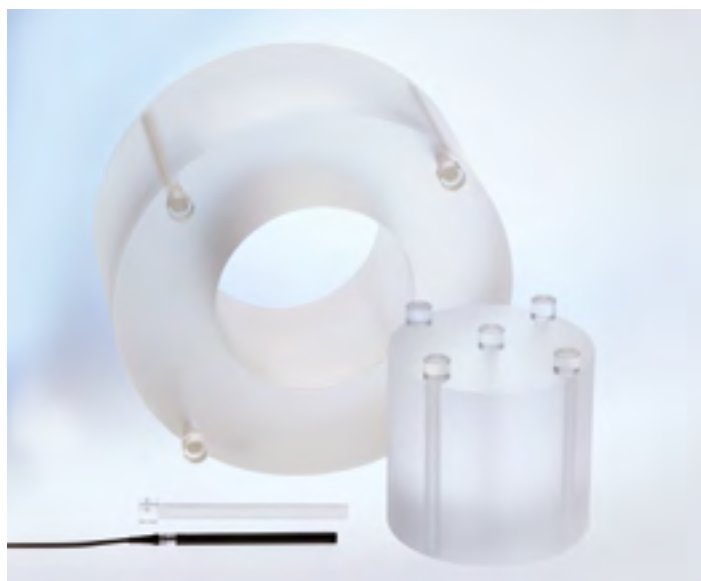
2-part PMMA CT-Phantom

Adult Head & Body VD1003110

Phantom for CTDI measurements according to IEC 60601-2-44, IEC 61223-3-5, IEC 61223-2-6.

Consisting of:

- 1 adult head phantom, 16 cm diameter, 5 holes
- 1 adult body annulus, 32 cm diameter, 4 holes
- 9 acrylic rods for plugging all the phantom holes



Test devices

Catphan 500 Phantom VD0403450

(including carrying case)

For evaluating the maximum obtainable performance potential of axial and spiral CT scanners.

Test Parameters:

- Slice width
- Sensitometry (Teflon, Acrylic, LDPE, Air)
- Pixel size
- Low contrast with supraslice and subslice contrast targets
- Image uniformity module

Catphan 600 Phantom VD0403460

(including carrying case)

For evaluating the maximum obtainable performance potential of multi-slice CT scanners with enhanced sensitometry samples for radiation therapy planning.

Test Parameters [additional to Catphan 500]:

- Sensitometry: Delrin Acrylic, Polystyrene, H₂O, PMP
- Slice geometry and point source bead module

Catphan 700 Phantom VD0403470

The Catphan® 700 Phantom has been designed to address the image performance measurement requirements for state of the art CT volume scanners

Test Parameters:

The phantom retains many of the tests and features offered in the other Catphan® models. Following test objects have been refined in this development.

- Higher resolution test patterns 1 to 30 LP/cm
- Smaller acrylic spheres in the sensitometry slice geometry module and additional bone and lung samples (for radiation therapy treatment planning).
- Innovative wave insert for measuring slice geometry and resolution across the scan area
- New rotation mount to be able to rotate the mounted phantom 360° with alignment detents at 45° intervals





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QUALITY CONTROL IN
**DENTAL
RADIOGRAPHY**

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Multimeter

Multimeter **MagicMaX-rad/flu/dent**

VD0201940

The flexible solution for thorough measurements at X-ray units – a new generation of measuring devices!

Features:

- USB based system to be used with PC/Laptop
- MagicMaX-Meter measurement software
- Including fixed solid state Multi-Detector "XR"
- Ability to attach an additional solid state detector for dose measurements
- Including robust aluminum carrying case
- Multimeter is designed according to IEC 61674 and IEC 61676

Measurement Parameters:

- Dose / dose rate
- Dose per pulse
- kVp / PPV
- Time
- Total filtration
- Half value layer (HVL)
- Waveform

Options / Additional Accessories

for MagicMax "Logo" series:

Notebook / Convertable VD0201930

Instead of your own laptop.

MagicMaX Current Probe VD0201975

For use with MagicMaX for invasive and non-invasive measurements of the tube current.

Illuminance Detector MM-LS VD0201951

For use with MagicMaX.

Solid State Detector RQA VD0202850

For use with MagicMaX for dose measurements only (look page 49)

Solid State Detector RQM VD0202860

For use with MagicMaX for dose measurements only (look page 32)



Also available as:

MagicMaX-Universal with XR Detector

Dosimeters

Dosimeter MagicMaX-rad/flu/dent

VD0201945

According to IEC 61674; the flexible solution for thorough measurements at X-ray units – a new generation of measuring devices!

Features:

- USB based system to be used with PC/Laptop
- MagicMaX-Meter measurement software
- Including solid state Dose-Detector RQA
- Ability to attach an additional solid state detector for simultaneous measurements of exit and entrance dose
- Including aluminum carrying case

Measurement Parameters:

- Dose / Dose rate
- Dose per pulse
- Time

Options / Additional Accessories:

Notebook / Convertable VD0201930

Instead of your own laptop.



For more technical information, please see the MagicMaX family matrix at the end of the brochure!

Dosimeter Dosimax plus A

[basic unit] VD0201747, Detector RQA VD0202850

PTB-approved single channel dosimeter according to IEC 61674, designed for acceptance tests and for quality checks at radiographic, fluoroscopic, dental and mammographic X-ray units.

For dental applications to be used with solid state detector RQA.

Measurement Parameters with Detector RQA:

- Dose: 200 nGy - 9999 mGy
- Dose rate: 80 nGy/s - 70 mGy/s (50 - 150 kV)
- Time: 1 ms - 19999 s

Option / Additional Accessory:

Carrying Case VD0225720

For dosimeter DOSIMAX *plus* series; offers space for 1 DOSIMAX *plus* and 2 solid state detectors (not DEDX/DE2DX).



The dosimeter DOSIMAX plus A is a medical device [according to the directive 93/42/EWG] of class I m / 12.

kV-Meter

kV-Meter **MagicMaXrad/flu/dent** VD0201948

The flexible solution for thorough measurements at X-ray units – a new generation of measuring devices!

Features:

- USB based system to be used with PC/Laptop
- MagicMaX-Meter measurement software
- Including solid state kV-detector
- Including aluminum carrying case

Measurement Parameters:

- kV
- Time
- Total filtration
- Half value layer (HVL)
- Wave form

Options / Additional Accessories:

Notebook / Convertible VD0201930

Instead of your own laptop.



For more technical information, please see the MagicMaX family matrix at the end of the brochure!

Detectors

MagicMaXUniversal Multi Detector XR VD0202030

Multidetektor is to be used with the MagicMaX Universal in kV a range of 40 - 150kV. The small footprint detector has 2 marked active areas, one for dose, dose rate, dose/puls and time and the other one for kVp, PPV, Half Value Layer, total filtration.

Size: 20 x 52 x 10



Solid State Detector RQA VD0202850

For quality checks and acceptance tests at radiographic, fluoroscopic and dental X-ray units, 50 - 150 kV.

Length of detector cable: 2 m



For luminance / illuminance measurements of your image display device, please see chapter "Quality Control at Medical Displays", page 52.

Test Devices According to IEC 61223-3-4 / IEC 61223-2-7 & DIN 6868-5 / DIN 6868-151.

Test Device DigiDent for Digital Dental Radiology [Acceptance- and Constancy Tests]

Suitable for intra-oral and panoramic x-ray system.

Specifications:

- Upper slab with centering rings for different cone sizes and absorber of 6 mm Al
- Resolution test (different types in different models as well as additional resolution tests are available - see below)
- 0.5 mm Al plate with contrast determination bore holes
- Basic plate with gaps for dose detector and sensor of the X-ray

The following Versions of DigiDent are available:

Test Device DigiDent U VD0903150

2.0 / 2.5 / 2.8 / 3.1 / 5.0 / 5.8 / 6.3 Lp/mm, diagonal arrangement

Test Device DigiDent I VD0903153

4.0 / 4.5 / 5.0 / 6.0 / 7.0 / 8.0 Lp/mm, diagonal (IEC) arrangement

Test Device DigiDent P VD0903154

1.6 / 1.9 / 2.2 / 2.5 / 3.0 Lp/mm, diagonal (IEC) arrangement

Test Device DigiDent G VD0903151

2.5 and 5.0 Lp/mm horizontal and vertical arrangement

The following Additional Resolution Tests are available for the DigiDent:

Additional Resolution Test - U VD0903158

2.0 / 2.5 / 2.8 / 3.1 / 5.0 / 5.8 / 6.3 Lp/mm, diagonal arrangement

Additional Resolution Test - I VD0903156

4.0 / 4.5 / 5.0 / 6.0 / 7.0 / 8.0 Lp/mm, diagonal (IEC) arrangement

Additional Resolution Test - P VD0903152

1.6 / 1.9 / 2.2 / 2.5 / 3.0 Lp/mm, diagonal (IEC) arrangement

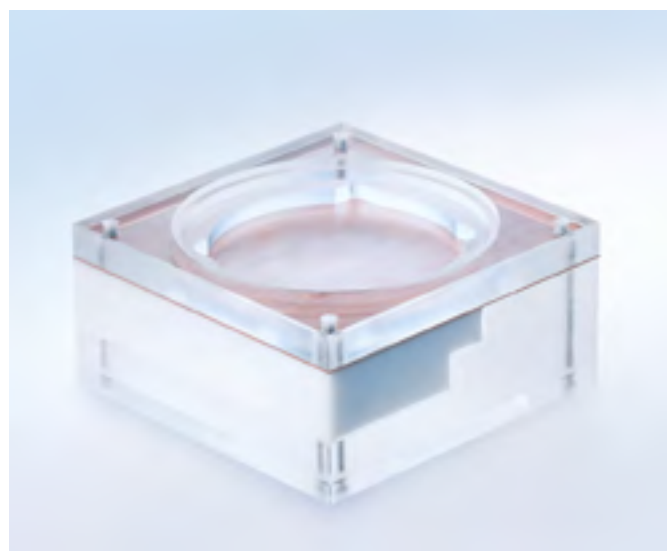
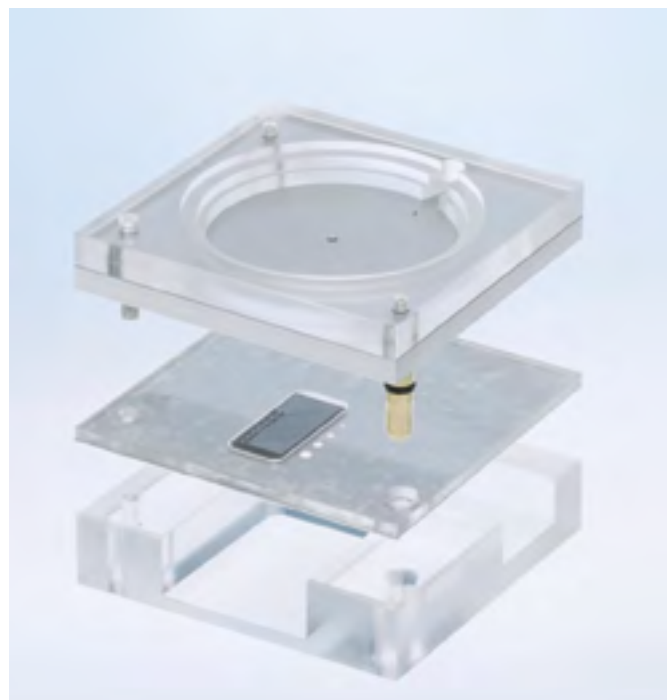
Additional Resolution Test - G VD0903157

2.5 and 5.0 Lp/mm, horizontal and vertical arrangement

Test Device Unident F VD0903170

Phantom for dental radiology using films.

Phantom housing with centering rings for different cone sizes, a foil of 0.3 mm Cu and two PTFE steps (8 and 16 mm).



Test Devices

Contrast-Detail-Phantom CDDENT VD0203719

[including analyzer-software and carrying case]

For quality control for dental X-ray systems.
This Contrast-Detail-Phantom is an aid for improving image quality.

Monitoring of Image Information Content:

- Contrast-Detail curve/detectability
- Tests low contrast and spatial resolution

Specifications:

- 3 mm Al-tablet with 100 cylindrical holes:
- Depth: 0.04 .. 0.7 mm, ± 0.02 mm [10 exponential steps]
- Diameter: 0.1 .. 1.0 mm, ± 0.02 mm [10 exponential steps]
- Quality report generation, aided by the accurate and easy to use analyzer software.



Accessories

Secondary Attenuator VD0903220

Additional Filter, 1 mm Cu VD09032202

For use with Secondary attenuator at panoramic dental X-ray units.

Holder for Supporting Plate, Type GENDEX VD0903210

Holder for Supporting Plate, Type SIRONA VD0903230



QUALITY CONTROL AT
MEDICAL DISPLAYS

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Complete Solutions



QC Kit IBACan VD0601405

Complete measuring kit for luminance measurements at image display devices (grayscale) according to DIN 6868-157 [acceptance tests] and IEC 61223-2-5 [constancy tests], AAPM TG18.

Consisting of:

- **Spot-Luminance-Meter LXcan**
Incl. mask for screen contact measurements
- **Power Supply**
With 4 adapters (RoHs conform)
- **USB-Cable***
For automatic transfer of the measured data and for recharging batteries
- **Carrying Case**



***Alternatively to USB-Cable, but exclusively for Automatic Transfer of the Measured Data:**

Interface Cable [2 m] RS 232 VD0601460

For automatic transfer of the measured data.

Optional Accessories:

Illuminance Detector LX-LS VD0602960

For measuring illuminance [lux] / ambient light of image display devices and at viewing boxes.

Tripod VD0610200

For measuring device LXcan, adjustable height 60 cm – 153 cm.

High Precision Mini Tripod VD0610210

For measuring device LXcan.

[This tripod version fits into the carrying case of QC Kit IBACan.]

Spot-Luminance-Meter

Quality Assurance solutions for imaging devices, like medical displays and viewing boxes, are needed to ensure best image quality for improved diagnosis in all x-ray modalities, like Radiology, Fluroscopy, Mammography, CT and Dental Radiology.

Unique combination of distance and screen-contact measurements in one device:

Spot-Luminance-Meter LXcan VD0601400

For QC-tests at image display devices (grayscale) incl. photometric detector with achromatic optic, integrated scattered light tube and mask for screen contact measurements.

Measurement Parameters:

- Display: 1.2" TFT (65K color)
- Alignment sensor: user definable
- Distance sensor: ultrasonic
- Targeting: display finder
- F.O.V.: 1.6°
- Measuring range: 0.05 - 10,000 cd/m²
- f1' uncertainty: ≤ 3%
- Interface: USB; RS232
- Stray-light-baffle: integrated
- Weight: 450 g



Recommended Accessory for LXcan for additional Illuminance Measurements:

Illuminance Detector LX-LS VD0602960

For measurements of illuminance in lux in the range of 0.1-10,000 lx.

- The ambient light of image display devices
- At viewing boxes



Software

DisplayQ Expert DICOM Curve VD0601011

Automated measurement of the DICOM Curve of image display devices according DIN 6868-157, IEC 62563-1.

With this DisplayQ Expert DICOM Curve, the calibration according the GSDF or DICOM Curve can be determined automatically reported.

While the test images will be shown in the DICOM viewer of the operator.

System requirements:

Microsoft Windows Vista SP2, Windows 7/ 8/ 10

Measurement devices:

LXcan, LXchroma, LXplus





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QUALITY CONTROL IN FILM PROCESSING

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Sensitometers

Sensitometer Unilight S VD0204110 # 001

Suitable for constancy tests.

For exposing an X-ray film with a standard 21-step wedge.

Sensitometer Unilight AS VD0204104 # 001

Suitable for acceptance tests.

For exposing an X-ray film with a high precision 21-step wedge, calibrated (DIN V 6868-55).



Densitometers

Densitometer Unilight D VD0204108 # 001

Suitable for constancy tests.

For a stepwise measurement of optical densities from a 21-step standard sensitometer wedge and for measurements of the optical density of X-rays (film size up to 35 x 35 cm).

Densitometer Unilight AD VD0204100 # 001

Suitable for acceptance and constancy tests.

Functionality as densitometer Unilight D, but including calculation of the processing parameters light sensitivity (LE) and light contrast (LK).

Densitometer Unilight ADA VD0204102 # 001

Suitable for acceptance and constancy tests.

Functionality as densitometer Unilight D, but alternatively suitable for auto-reading of optical densities (motorized measuring section) and auto-calculating of light sensitivity (LE) and light contrast (LK). Incl. RS 232 interface.

Densitometer Unilight D / TR VD0204109 # 001

Suitable for constancy tests.

Functionality as densitometer Unilight D, but especially also suitable for dry laser films.



Densitometer Unilight D i VD0204111 # 001

Suitable for constancy tests.

Functionality as Densitometer Unilight D, but including RS 232 interface.

A Power Supply is necessary for all Types of Densitometers:

Power Supply VD0214260

For 110 V / 220 V DC.

Optional Accessory:

Interface Cable VD0204112

For Densitometer Unilight D i.

Sensitometers and Densitometers are developed according to IEC 61223-2-1, German Standards DIN 6868-2 [Constancy Tests] resp. DIN V 6868-55 [Acceptance Tests].

Combination Devices

Sensitometer and Densitometer in one Unit:

Sensitometer / Densitometer

Duolight VD0204300 # 001

Suitable for constancy tests. Sensitometer Unilight S and densitometer Unilight D in one unit.

Sensitometer / Densitometer

Duolight A VD0204302 # 001

Suitable for constancy tests. Sensitometer Unilight S and densitometer Unilight D in one unit with motorized measuring section for auto-reading of densities and an RS 232-interface.

Sensitometer / Densitometer

Duolight AS VD0204304 # 001

Suitable for acceptance tests. Sensitometer Unilight AS and densitometer Unilight AD in one unit. Calibrated according to DIN V 6868-55.



Sensitometer / Densitometer

Duolight AS A VD0204306 # 001

Suitable for acceptance tests. Sensitometer Unilight AS and Densitometer Unilight ADA in one unit. Calibrated according to DIN V 6868-55.

A Power Supply is necessary for all Types of Combination Devices:

Power Supply VD0214260

For 110 V / 220 V DC.

Accessories

Thermometer RT-1 (Digital)

VD0219250

Software

Software for monitoring the X-ray Film Development Process:

Software Infosens Light VD0002404

For one processing unit.

Software Infosens Light VD0002405

For two processing units.

Software Infosens Light VD0002406

For three processing units.



ACCESSORIES FOR RADIOLOGY

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Frames and Stands

Stand for Test Device Primus / DIGI-13 VD0212170

As well as for solid state detector DEDX and Aluminium Pre-Attenuator.

Specifications:

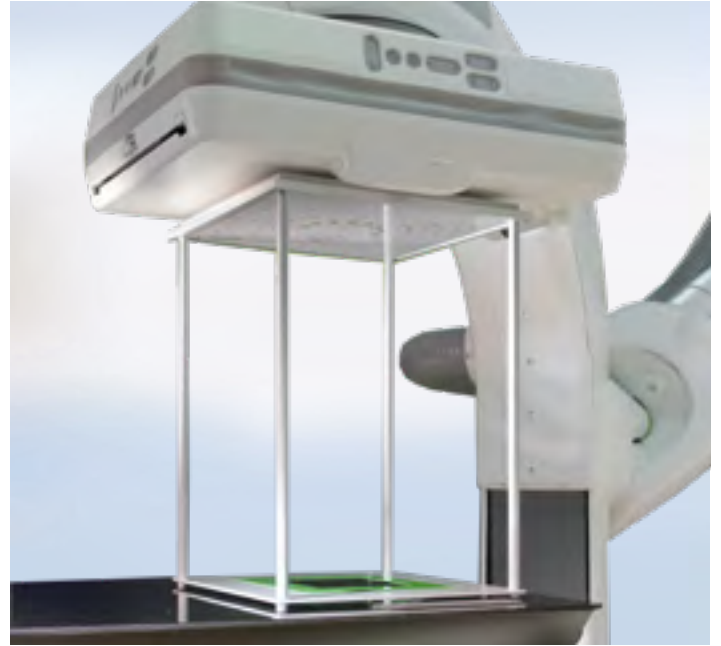
- Dimensions of the stand plate in mm: 300 x 300
- Height of the stand in mm: 435

Stand for Test Device ETR1 VD0212160

As well as for solid state detector DEDX and Aluminium Pre-Attenuator.

Specifications:

- Dimensions of the stand plate in mm: 280 x 280
- Height of the stand in mm 385



Mounting Frame, Type RW-1 VD0213100

For test devices ETR1 and DIGI-13, highly recommended for use with a chest unit.

Mounting Frame, Primus VD0213104

To mount test device Primus or Digi-13 at the chest wall stand.



Adapters

Adapter for Small

Collimators VD0212190

Distance of collimator rails: 98 mm - 174 mm.

Adapter for Mobilett E/B VD0212220

To be used with Siemens systems.

Adapter for Mobilett Plus VD0212210

To be used with Siemens systems.

Adapter for Mobilett Mira Handle VD0212241

to be used with Siemens systems.

Adapter for Practix 2000 VD0212200

To be used with Siemens systems.

Adapter for Blue Handle

Mobilett XP VD0212240

To be used with Siemens systems.

More adapters are available on request.



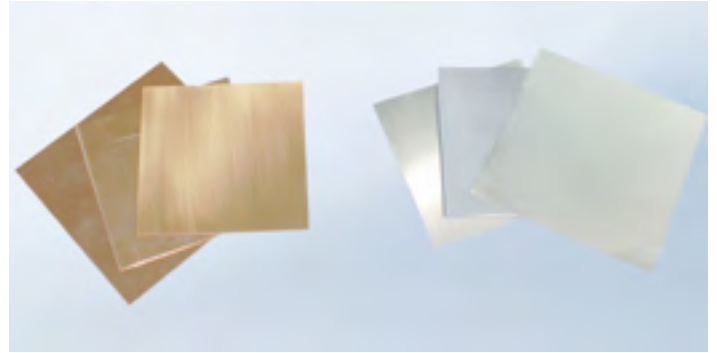
Filters

Additional Filter, 1 mm Cu

VD0212110

For the patient equivalent attenuator 11.5 cm x 11.5 cm.

More Al & Cu Filters in different sizes and thicknesses are available on request.



Carrying Cases

Carrying Case "Dosimax plus" VD02259720

For 1 Dosimax *plus* and 2 solid state detectors (RQA/RQM) or 1 ionization chamber.

Carrying Case "QC Kit IBAflu-L" VD0225115

For equipment as listed on page 15.

Carrying Case "Universal":

Without insert, suitable for the transport of smaller, special cases in one piece of luggage.

Carrying Case "Universal with Trolley" VD0230880

Internal dimensions in mm: 600 x 600 x 235.

Further cases on request.



Resolution Tests – Line-Group Tests

X-ray Test Pattern

Tests for Determination of the Visual Resolution

Line-Group Tests

Order No.	Type	Range of Resolution in lp/mm	Dimensions in mm
VD0219122	1 - 83	0.5...5.0	110 x 42
VD0219132	4 a	0.5...8.0	45 x 45
VD0219133	4 b	0.8...5.5	45 x 45
VD0219134	4 c	1.4...8.0	45 x 45
VD0219135	6 - 1.0	1.0...2.0	∅ 32
VD0219136	6 - 2.0	2.0...3.0	∅ 32
VD0219137	6 - 3.0	3.0...4.0	∅ 32
VD0219138	6 - 4.0	4.0...5.0	∅ 32
VD0219139	6 - 1.8	1.8...3.15	∅ 32
VD0219141	6 - 2.8	2.8...5.0	∅ 32
VD0219125	16	0.5...4.0	120 x 40
VD0219142	18	0.5...5.0	55 x 45
VD0219128	18 b	0.5...10.0	47.5 x 57.5
VD0219129	18 c	0.5...16.6	47.5 x 57.5
VD0219124	18 d	0.5...20.0	47.5 x 57.5
VD0219143	21	2.0...10	94 x 50
VD0219100	38	0.6...5.0	50 x 50
VD0219146	41	0.6...3.4	50 x 50
VD0219147	42	2.0...6.0	50 x 50
VD0219130	43	3.4...10.0	50 x 50
VD0219131	68	1.4...8.4	74 x 35
VD0219103	80	2.0...6.0	60 x 38
VD0219101	81	0.6...10.0	65 x 55



Type 81



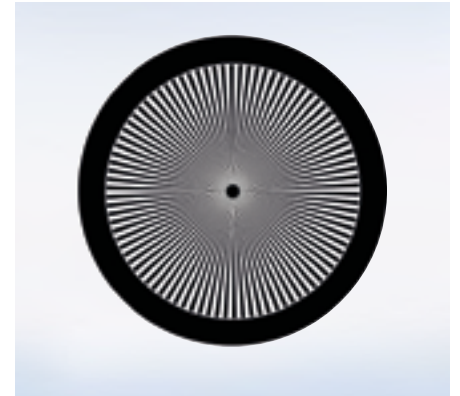
Besom Tests

Order No.	Type	Range of Resolution in lp/mm	Dimensions in mm
VD0219123	23	0.5...5.0	150 x 50
VD0219127	39	1.5...20.0	60 x 30
VD0219149	82	1.0...10.0	80 x 40

Resolution Tests – Line-Group Tests

Tests for Determination of the Focal Spot Size Sector-Star Tests

Order No.	Type	Angle of Single Line within a Sector	Number and Sizes of Patterned Sectors	Diameter in mm
VD0219104	9 / 0.5	0.5°	4 - 45°	55
VD0219105	9 / 1.0	1.0°	4 - 45°	55
VD0219106	9 / 1.5	1.5°	4 - 45°	55
VD0219107	9 / 2.0	2.0°	4 - 45°	55



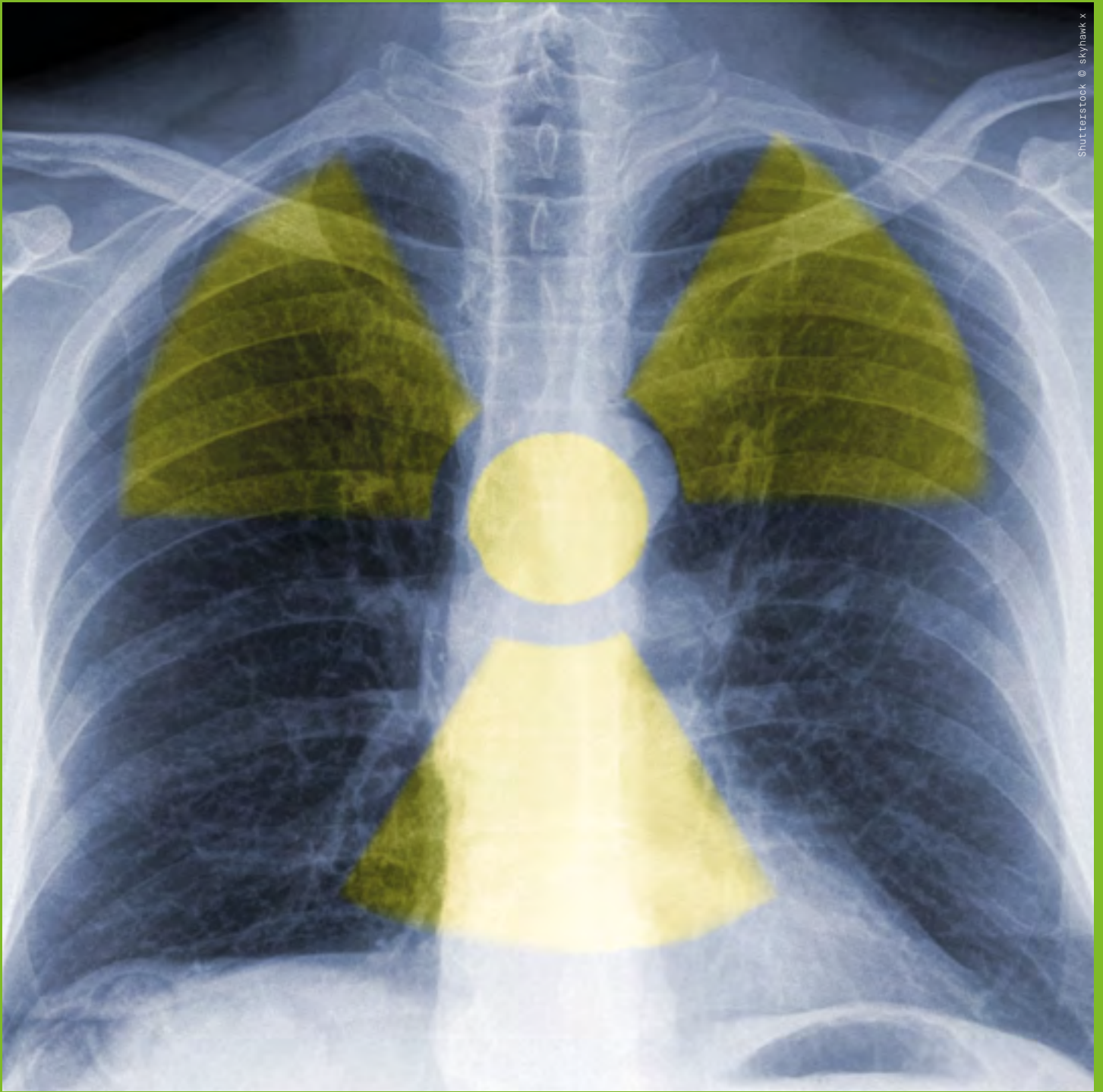
Type 9 / 1.5

Tests for Determination of the Focal Spot Size Star Tests

Order No.	Type	Angle of Single Line within a Sector	Number and Sizes of Patterned Sectors	Diameter in mm
VD0219108	9 / 1.5 / 360	1.5°	1 - 360°	55
VD0219109	9 / 2.0 / 360	2.0°	1 - 360°	55



Type 9 / 1.5 / 360



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RADIATION SAFETY

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Survey Meter

Survey Meter SM 3 D VD0401170

Portable survey meter for the measurement of the ambient dose rate equivalent $dH^*(10)/dt$

Areas of Application:

Portable survey meter for Measurement of Ambient dose equivalent rate in Medicine, Industry, Nuclear Power Plant, and Life-Sciences, research and development facilities,

Technical Specifications:

- M-Measuring value Ambient dose rate equivalent $dH^*(10)/dt$
- Measuring range 0.01 $\mu\text{Sv/h}$... 999 $\mu\text{Sv/h}$
Dose rate averaging every 60 seconds
- Intrinsic Error < 25 % [referring to Co-60]
- Energy range
Photon radiation 40 keV ... 1.3 MeV
- Radiation detector
Type energy compensated halogen-quenched
Geiger-Mueller-Tube
- Overload capacity 10 - times
- Display Digital on LCD
Audible
Background lightning
- Power Supply
Batteries 2 x LR 6 Type AA 1.5 V
Battery lifetime approx. 100 hrs [at background radiation level]
- Operating conditions
Temperature - 20 °C ... + 50 °C
Rel. Humidity max. 90 % [at 30 °C]
- Weight \leq 250 g
- Dimensions 145 x 80 x 40 mm



Survey Meter

Survey Meter OD-02 VD0401118

For measurements of ambient and directional equivalent dose of pulsed radiation fields and dose rate of X-rays, gamma and beta radiation.

Measurement Parameters:

- Detector type: Air-opened ionization chamber
- Dose rate display: 0 ... 2000 $\mu\text{Sv/h}$, 0 ... 2000 mSv/h
- Photon energy range: 6 keV - 15 MeV
(<15 MeV with optional PMMA-Moderator Lid)
- Beta energy range: 60 keV - 2 MeV

Optional Accessories:

Connecting Cable VD0401111

50 m for survey meter OD-01 / 02.

PMMA-Moderator Lid VD0401112

For measurements < 15 MeV.

Software VD0401119

For survey meter OD-02.



Personal Dosimeter

Electronic Personal Dosemeter ED 150 VD0401510

with alarm function and dose rate indication for the detection of the personal γ -dose when handling ionising radiation.

PTB-approved dosimeter for measuring gamma and X-rays for the measuring size Hp(10) [personal dose equivalent]

- Detector: energy compensated GM tube
- Radiation in front of the user's body
(detection of a solid angle of 180°)
- 4 preset dose and dose rate alarm thresholds

Measuring Areas:

- Dose indication range:
 $0.1 \mu\text{Sv} \leq \text{Hp}(10) \leq 10 \text{ Sv}$
- Dose rate indication range:
 $0.1 \mu\text{Sv/h} - 1.5 \text{ Sv/h}$
- Dose rate measuring range:
 $1 \mu\text{Sv/h} - 1.5 \text{ Sv/h}$





DOSE AREA PRODUCT METERS

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Dose Area Product Meters [DAP-meters]

The Convenient Solution for the Determination of Diagnostic Reference Levels and Individual Patient Dose Values and QA Measurements

Compliance with the following Standards:

- IEC 60580 "Medical Electrical Equipment - Dose area product meters"
- IEC 60601-1 "Medical Electrical Equipment - General requirements for basic safety and essential performance".
- Medical device, class IIb, according to "Council Directive 93/42/EEC of 14 June 1993 concerning Medical devices".
- The light transparency of more than 75 % and the extended kV range starting from 40 kV underline the outstanding features of the system.
- Easy installation due to cost effective and flexible cabling system based on tele communication standard cable (no high voltage cable is used).

KermaX[®] plus TinO [Two in One]

DAP-meter and real-time dosimeter (time resolution: 500 μ s) dedicated to measure simultaneously DAP/DAP rate as well as

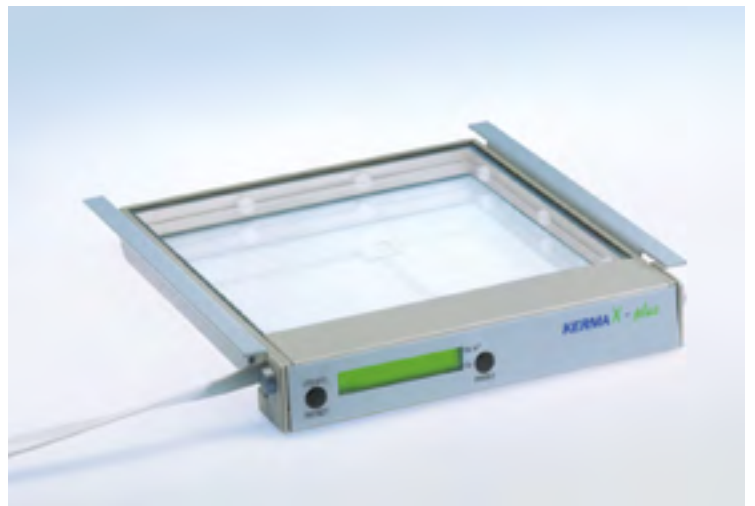
- Cumulative air kerma (real time dosimeter)
- Air kerma rate
- Exposure time (KermaX[®] plus TinO DDP)
- Suitable for measurements in pediatric applications due to its digital resolution of 0.01 μ Gy m^2

KermaX[®] plus TinO IDP_{120-TinO-IDP}

Rectangular, transparent ionization chamber with integrated electronics, a 10-digit internal background lighting LC-Display, interface optionally.

KermaX[®] plus TinO DDP_{120-TinO-DDP}

Rectangular, transparent ionization chamber with integrated electronics and a "Dual Line Display" with two very bright LED display lines indicating either DAP / DAP-rate and exposure time or dose/dose rate; printer interface.

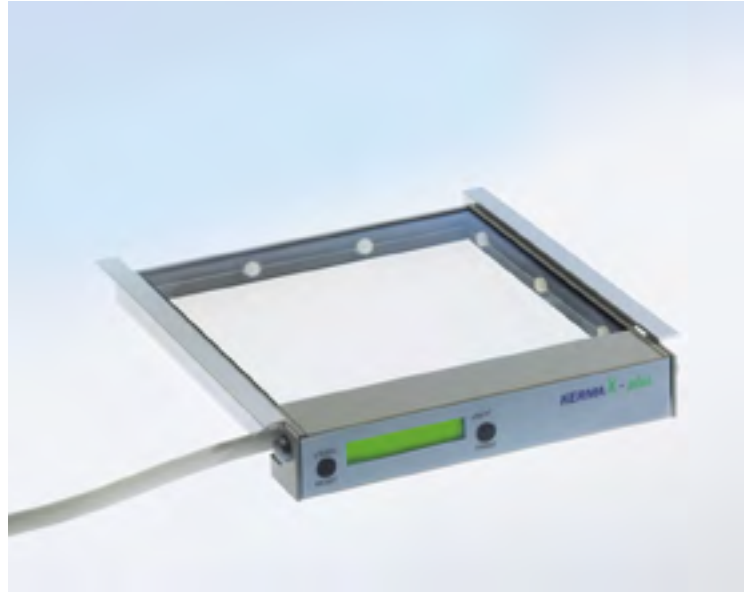


DAP-meters

KermaX[®] plus IDP 120-IDP

Ideal solution for a quick and convenient retrofit installation dedicated to measure DAP and DAP rate for patient dose monitoring.

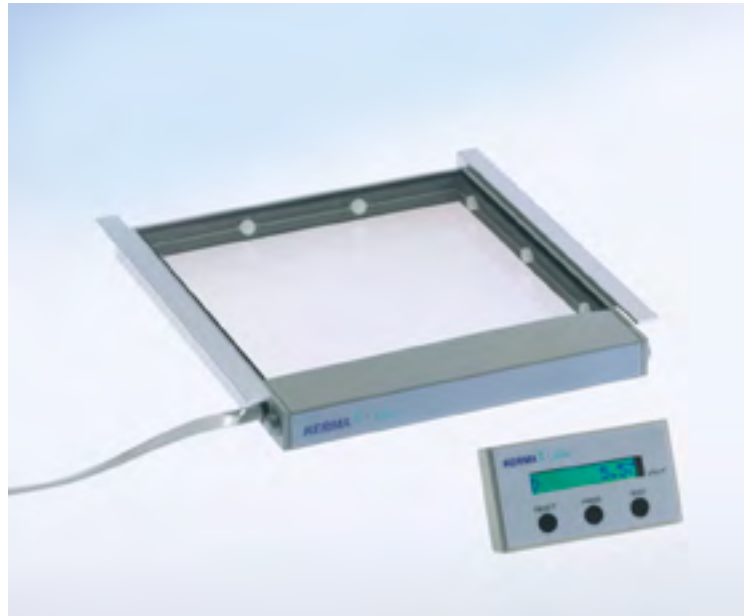
- Rectangular, transparent ionization chamber with integrated electronics and a 10-digit internal background lighting LCD display; optional RS 232 / RS 485 for computer or printer interface
- Suitable for measurements in pediatric applications due to its digital resolution of $0.01 \mu\text{Gym}^2$



KermaX[®] plus SDP 120-SDP

Easy to install standard dosimeter dedicated to measure DAP and DAP rate for patient dose monitoring.

- Rectangular, transparent ionization chamber with integrated electronics and a separate 10-digit background lighting LCD Single Line Display providing an RS 232 PC / Printer interface
- Suitable for measurements in pediatric applications due to its digital resolution of $0.01 \mu\text{Gym}^2$



DAP-meters

KermaX® plus DDP "Single"

120-DDP S

Duo-channel multifunctional dosimeter dedicated to measure DAP or DAP rate or exposure time in patient dose monitoring.

- One rectangular, transparent ionization chamber with integrated electronics and "Dual Line Display D" with two very bright LED display lines indicating either the DAP / DAP rate or exposure time
- The system provides two RS 232 interfaces (RIS/HIS and printer connection)

The chambers can be delivered in the highly sensitive version on request.



KermaX® plus DDP "Duo"

120-DDP D

Duo-channel multifunctional dosimeter dedicated to measure DAP or DAP rate or exposure time in patient dose monitoring.

- Two rectangular, transparent ionization chambers with integrated electronics and "Dual Line Display D" with two very bright LED display lines indicating either the DAP / DAP rate or exposure time
- The system provides two RS 232 interfaces (RIS/HIS and printer connection)

The chambers can be delivered in the highly sensitive version on request.



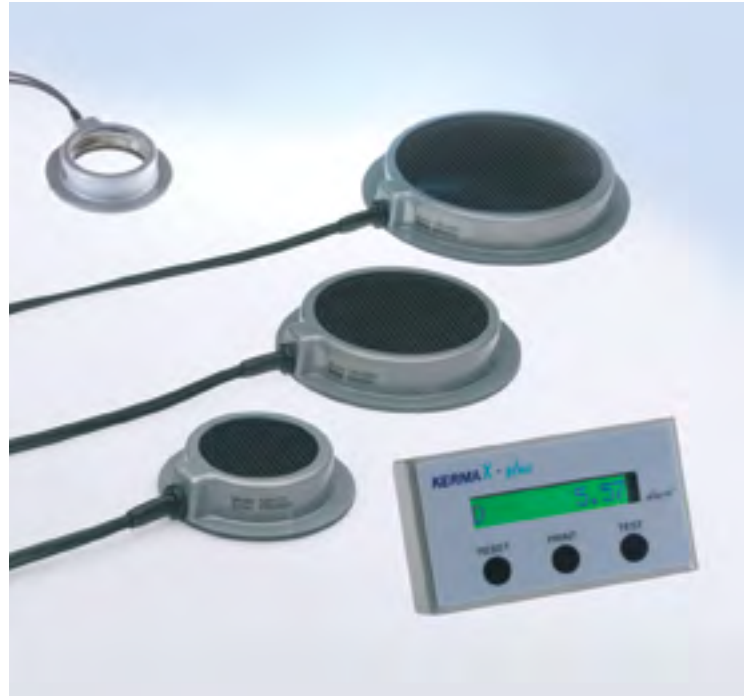
DAP-meters

KermaX® plus C ^{120-C}

Easy to install standard dosimeter dedicated to measure DAP and DAP rate for patient dose monitoring.

- Circular, nontransparent or transparent ionization chamber with separated electrometer box and a separate 10-digit background lighting LCD Single Line Display providing an RS 232 PC / Printer interface
- Standard resolution: 0.1 μGym^2

Four standard sizes are available; customized solutions on request.



Accessories

Printer Set "Star" ^{120-Star}

Consisting of:

- Robust matrix-printer, type Star
- Printer cable
- Power supply
- 1 set of labels (1,000 pcs.)

Printer Set "Zebra S" ^{120-Zebra_S}

Consisting of:

- Robust thermo-printer, type Zebra LP2824
- Printer cable
- Power supply
- 1 set of labels (1,680 pcs.)

Adapters, Rails and Cables

There are multiple optional adapters, rails and cables which can be used with all KermaX plus and KermaX® plus Tin0 Systems.

More detailed information on request.





PRODUCT OVERVIEW

TABLES

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Measuring Devices Overview

		Dosimax plus I	Dosimax plus A	Dosimax plus A - HV	Dosimeter MagicMax Rad/Flu/Dent	Dosimeter MagicMax MAM	kV-meter MagicMax Rad/Flu/Dent	kV-meter MagicMax MAM	MagicMax Universal	MagicMax Rad/Flu/Dent	Multimeter MagicMax MAM	LXcan		
kVp / PPV	Rad						●		●	●			Rad	kVp / PPV
	Flu/ DSA						●		●	●			Flu/ DSA	
	Mam							●	●	●			Mam	
	CT								●	●			CT	
	Dental						●		●	●			Dental	
	Dose	●	●	●	●	●			●	●	●		Dose	
	Dose rate	●	●	●	●	●			●	●	●		Dose rate	
	Dose per pulse				●	●			●	●	●		Dose per pulse	
	Time	●	●	●	●	●	●	●	●	●	●		Time	
	mAs								●	●	●		mAs	
	Dose-length-product			●					●				Dose-length-product	
	CTDI			●					●					
	HVL						●	●	●	●	●		HVL	
	Total Filtration						●	●	●	●	●		Total Filtration	
	Illuminance [lx]								●	●	●	●	Illuminance [lx]	
	Luminance [cd/m2]											●	Luminance [cd/m2]	
	chromaticity [CIE x;y]												chromaticity [CIE x;y]	
	Color temperature												Color temperature	
waveform	Dose rate			●	●				●	●	●		Dose rate	waveform
	kV						●	●	●	●			kV	
	mA								●	●	●		mA	
	Conformity Statement/ can be officially gauged		●	●	●	●			●			Conformity Statement/ can be officially gauged		

● Standard
● Optional

Measuring Devices Matrix

		Dosimax plus I	Dosimax plus A	Dosimax plus A - HV	Dosimeter MagicMax Rad/Flu/Dent	Dosimeter MagicMax MAM	kV-meter MagicMax Rad/Flu/Dent	kV-meter MagicMax MAM	MagicMax Universal	Multimeter MagicMax Rad/Flu/Dent	Multimeter MagicMax MAM	LXcan			
Radiography	PPV / kVp						●		●	●			PPV / kVp	Radiography	
	Dose	●	●		●	●			●	●	●		Dose		
	Dose rate	●	●		●	●			●	●	●		Dose rate		
	Dose per pulse				●	●			●	●	●		Dose per pulse		
	Time	●	●		●	●	●		●	●	●		Time		
	mAs								●	●	●		mAs		
	Waveform				●	●	●		●	●	●		Waveform		
	HVL						●		●	●	●		HVL		
Total Filtration						●		●	●	●		total Filtration			
Flu / DSA	PPV / kVp						●		●	●			PPV / kVp	Flu / DSA	
	Dose	●	●		●	●			●	●	●		Dose		
	Dose rate	●	●		●	●			●	●	●		Dose rate		
	Dose per pulse				●	●			●	●	●		Dose per pulse		
	Time	●	●		●	●	●		●	●	●		Time		
	mAs								●	●	●		mAs		
	Waveform				●	●	●		●	●	●		Waveform		
	HVL						●		●	●	●		HVL		
Total Filtration						●		●	●	●		total Filtration			
Mammography	PPV / kVp						●		●	●			PPV / kVp	Mammography	
	Dose	●	●		●	●			●	●	●		Dose		
	Dose rate	●	●		●	●			●	●	●		Dose rate		
	Dose per pulse				●	●			●	●	●		Dose per pulse		
	Time	●	●		●	●	●		●	●	●		Time		
	mAs								●	●	●		mAs		
	Waveform				●	●	●		●	●	●		Waveform		
	HVL						●		●	●	●		HVL		
Total Filtration						●		●	●	●		total Filtration			
Dental	PPV / kVp						●		●	●			PPV / kVp	Dental	
	Dose	●	●		●	●			●	●	●		Dose		
	Dose rate	●	●		●	●			●	●	●		Dose rate		
	Time	●	●		●	●	●		●	●	●		Time		
	mAs								●	●	●		mAs		
	Waveform				●	●	●		●	●	●		Waveform		
	HVL						●		●	●	●		HVL		
Total Filtration						●		●	●	●		total Filtration			
CT	PPV / kVp								●	●			PPV / kVp	CT	
	Dose			●					●				Dose		
	Time			●					●				Time		
	Dose-length-product			●					●				Dose-length-product		
	Waveform								●				Waveform		
Light measurement	Luminance [cd/m²]											●	Luminance [cd/m²]	Light measurement	
	Illuminance [lx]								●	●	●	●	Illuminance [lx]		
		●	Standard										●	Dose meter	
		●	Optional Sensor										●	Light Measurement Device	
													●	kV - Meter	
													●	Dose meter only for constancy check	

Partners and External Manufacturers

Radiography / Fluoroscopy

Artinis:

Contrast-Detail-Phantom CDRAD
Contrast-Detail-Phantom CD DISC 2.0

Mammography

Artinis:

Test Device PASMAM 1054 C
Test Device Mam-14
Test Device Mam-162
Contrast-Detail-Phantom CDMAM
PMMA Spacer Set
DIGIMAM Phantom
EU Test Set

Pehamed:

Mammographic Step Wedge
Test Device Breast Compression

Computed Tomography

IRIS:

Software CT QALite

The Phantom Lab:

Catphan 500 Phantom
Catphan 600 Phantom
Catphan 700 Phantom

Dental Radiography

Artinis:

Contrast-Detail Phantom CDDENT

Film Processing

Pehamed:

Software Infosens

Accessories for Radiology

Hüttner:

Line Pair Tests

Radiation Safety

Graetz:

Electronic Personal Dosimeter ED 150

STEP:

Survey Meter 3D
Survey Meter OD-02

Dose Area Product Meters

Seiko:

Printer Set "Star"

Zebra:

Printer Set "Zebra S"



Discover more online:
iba-dosimetry.com



IBA offers innovative high-quality solutions and services with a focus on patient safety in cancer diagnosis and therapy.



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