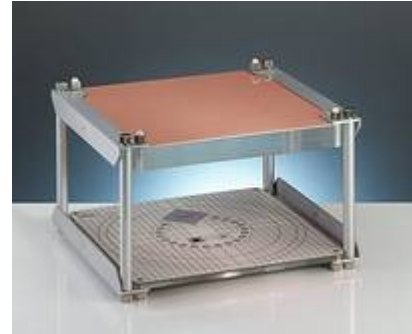


## X-Check FLU X-Ray Test Objects

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### Test object for constancy tests of analogue fluoroscopic X-ray installations acc. IEC 61223-2-9

- Modular package for constancy tests of analogue fluoroscopic X-ray installations
- Suitable for overcouch and undercouch tubes and c-arms
- Simulates the patient with respect to attenuation and hardening of the radiation beam
- Includes all relevant test structures and absorbers
- All characteristics can be tested simultaneously



The X-Check FLU test object is used for constancy tests of fluoroscopic and indirect radiographic X-ray equipment according to IEC 61223-2-9. The X-Check FLU package includes a structure plate with a 10 mm grid, a gray-scale test, a low-contrast test and a resolution test pattern. Furthermore, the X-Check FLU package comprises assembling parts as well as a 30 mm thick acrylic plate and a 1.3 mm thick copper plate for beam attenuation. The external plate dimensions are 300 mm x 300 mm. The construction of the X-Check FLU allows to check all parameters in one shot.

Instead of the acrylic absorber, an optional 25 mm thick aluminum absorber can be fixed to the collimator by using adaption rails. The entrance dose can be measured with a CONNY II dosimeter.

## X-Check RAD X-Ray Test Objects

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### Test object for constancy tests of analogue radiographic X-ray installations acc. IEC 61223-2-11

- Modular package for constancy tests of analogue radiographic X-ray installations
- Suitable for overcouch and undercouch tubes and wallstand installations
- Simulates the patient with respect to attenuation and hardening of the radiation beam
- Includes all relevant test structures and absorbers
- All characteristics can be tested simultaneously



The X-Check RAD test object is used for constancy tests of general direct radiographic X-ray equipment according to IEC 61223-2-11. The X-Check RAD package comprises two structure plates including a resolution test pattern, structures for testing the field alignment, the perpendicular position and the optical density. The construction of the X-Check RAD allows to check all parameters in one shot. The field alignment is checked by X-ray absorbing markings. Furthermore, the X-Check

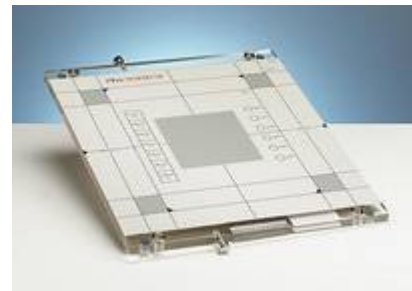
RAD package includes assembling parts as well as a 30 mm acrylic and a 1.3 mm thick copper plate for beam attenuation. The plate dimensions are 300 mm x 300 mm. Instead of the acrylic absorber, an optional 25 mm thick aluminum absorber can be fixed to the collimator by using adaption rails. The X-Check RAD also features a cassette holder according to the IEC. The entrance dose can be measured with the CONNY II dosimeter.

## NORMI 58 X-Ray Test Object

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### Test object for quality control of digital X-ray installations

- Checks the specific parameters of digital X-ray equipment
- Enables QA checks of digital radiographic X-ray installations
- Used in combination with an Al absorber



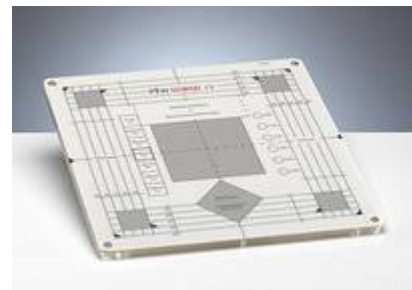
NORMI 58 is a test object to check the image quality of digital radiographic installations. The object structures make it possible to test the specification of the electronic signals, the dose indicator, the contrast resolution, the image homogeneity, the image geometry and scale, and possible artifacts. NORMI 58 requires a 25 mm Al absorber for realistic exposures.

## NORMI 13 X-Ray Test Object

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### Test object for quality control of digital X-ray installations

- Checks the relevant parameters of digital X-ray equipment
- Suitable for acceptance tests and constancy tests
- Includes a resolution test pattern
- Requires an attenuation plate for patient simulation and a diagnostic dosimeter for entrance dose measurement



The NORMI 13 test object is designed for acceptance tests and constancy tests of X-ray equipment with a digital image intensifier. It includes a structure plate with radiological visible line marks for the light field adjustment and the test of the light field/radiation field congruency, a gray scale test, a low-contrast test, a line group resolution test pattern, an area for entrance dose measurement and homogeneous areas for homogeneity tests and signal normalization. The structure plate is used in combination with a 30 mm thick acrylic attenuation plate or a 25 mm Al plate to simulate patient absorption. A 1.3 mm thick Cu plate is used in addition for tests at 100 kV. The external dimensions of the plates are 300 mm x 300 mm. The entrance dose is measured by the CONNY II or the DIADOS E dosimeter.

## NORMI 4 X-Ray Test Object

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### Test object for constancy tests of analogue fluoroscopic X-ray installations

- Checks all relevant parameters of analogue fluoroscopic X-ray installations during constancy tests in one shot
- Suitable for overcouch and undercouch tubes and wallstand installations
- Complies with DIN 6868-4: 1987



The NORMI 4 test object is used for constancy tests of fluoroscopic and indirect radiographic X-ray equipment according to DIN 6868-4: 1987. The NORMI 4 package includes a structure plate with a copper step wedge, radio opaque concentric rings, a 10 mm grid, a homogeneous field in the centre for testing the optical density or the gray value and a resolution test pattern.

Furthermore, the NORMI 4 package includes assembling parts as well as a 30 mm thick acrylic plate and a 1.3 mm thick copper plate for beam attenuation. The external plate dimensions are 300 mm x 300 mm. Instead of the acrylic absorber, an optional 25 mm thick aluminum absorber can be fixed to the collimator by using adaptation rails. The entrance dose can be measured with a CONNY II dosimeter.

## NORMI 4 FLU and NORMI 4 FLU plus X-Ray Test Objects

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### Test object for quality control of analogue and digital fluoroscopic X-ray installations

- Checks all relevant parameters of analogue and digital fluoroscopic X-ray units
- Suitable for routine quality checks on over couch tubes, under couch tubes and C arms
- Includes an attenuation plate for patient simulation
- Complies with DIN 6868-4: 2007



The NORMI 4 FLU test object is used for constancy tests of analogue and digital X-ray installations for fluoroscopy according to DIN 6868-4. The NORMI 4 FLU packages include a structure plate with a copper step wedge for testing the dynamic range, a resolution test pattern, low contrast and detail test elements as well as a kV test area for the determination of the radiation quality. The NORMI4 FLU structure plate allows to check all parameters in one shot.

Four different NORMI 4 FLU packages are available, either with the outer dimensions 200 x 200 x 18.5 mm or 300 x 300 x 18.5 mm (NORMI4FLU<sup>plus</sup>) and either with a 30 mm thick PMMA and an additional 1 mm thick copper plate or with a 25 mm thick aluminum absorber for patient simulation. Furthermore, each NORMI 4 FLU package includes assembling parts which allow a convenient adjustment on over couch tubes, under couch tubes and C arms. The entrance dose can be measured with a CONNY II or DIADOS E dosimeter.