

SRS MR Distortion Phantom

- Provides realistic, anthropomorphic imaging scenarios
- Presents simulated bony anatomy as rigid landmarks for image fusion
- Unique inter-cranial 3D design
- Frame cups compatible with all fixation frames
- CT/MR markers facilitate positioning and image registration



Characterize Geometric Accuracy for MR use in Treatment Planning

SRS MR Distortion Phantom (Model 603-GS) is designed to assess MR image distortion in stereotactic radiosurgery planning. It's also useful for verifying image fusion and deformable image registration algorithms used in various treatment planning systems. The tissue equivalent, anthropomorphic design closely matches a clinical imaging scenario.

Tissue Equivalent, Anthropomorphic Head

The skull is made from a plastic-based trabecular bone substitute, and the interstitial and surrounding soft tissues are made from a proprietary signal generating water-based polymer. The entire phantom is encased in a clear plastic shell to protect gel from desiccation. Specially designed pads allow fixation with any stereotactic frame or mounting devices for end-to-end testing. The phantom is also suitable for frameless SRS QA.

Finely Detailed Inter-Cranial 3D Design

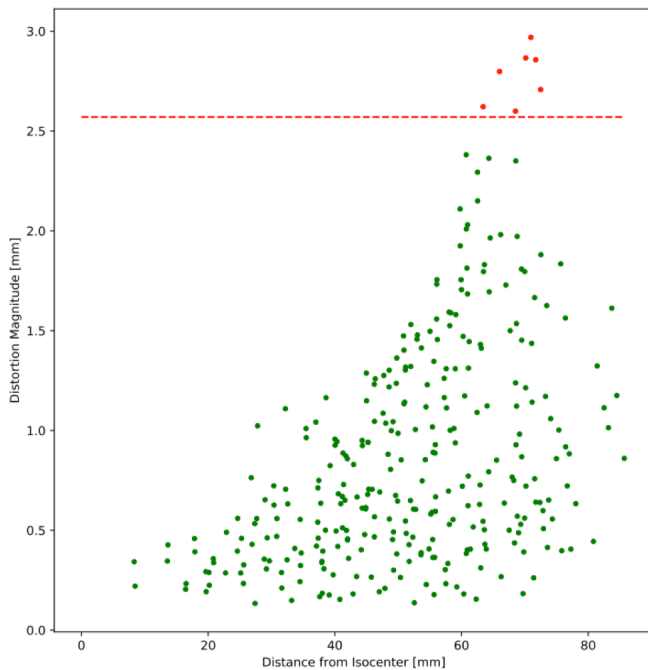
The entire inter-cranial portion of the skull volume is filled with an orthogonal 3D grid of 2.5 mm diameter cross-like shaped rods spaced 10 mm (I-S), 10.5 mm (AP) and 11 mm (L-R). Extra material added in the grid intersections increase grid signal. Five extended axis-rods intersect at the reference origin of the grid. The end of each extended axis is fitted with CT/MR markers allowing for accurate positioning with lasers and co-registration of CT and MR image sets. The phantom contains air voids on both sides that replicate ear canals. These voids are utilized to assess common distortions encountered in clinical settings.

Automated Analysis of Distortion in MRgRT

Used with MRI Grid phantoms, Distortion Check software quickly and automatically quantifies distortion in MRI images. Simply scan the phantom, upload images, review reports and trend analysis, and export DICOM overlays.

The software registers either a ground truth CAD or CT scan to the detected control points. An interpolation is then performed to generate the 3D distortion vector fields.

Results can be reported in a variety of output formats including scatter plots, contour plots, box and whisker plots for trending, and DICOM overlays that can be exported to third party software.

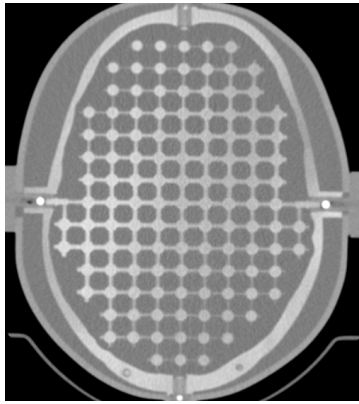


Features

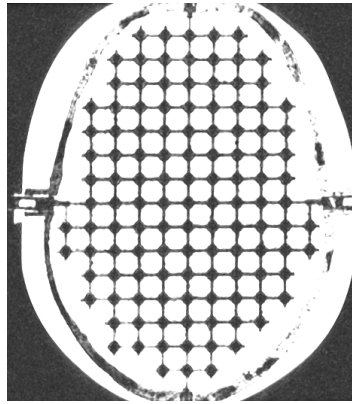
- Quickly and automatically analyze complete MR data sets
- Density of control points optimized to bring interpolation close to linearity
- User-friendly cloud-based solution
- Detailed format in NEMA MS 12 standard recommendations
- Easily analyze and track multiple machines, imaging sequences and phantoms
- Establish distortion tolerance thresholds specific to different imaging sequences

Phantom In Use

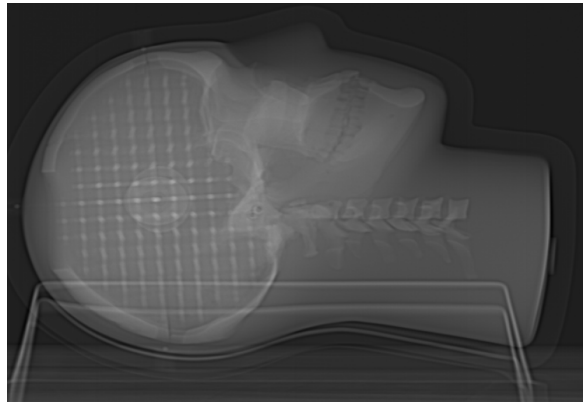
The SRS MR Distortion Phantom can be imaged using X-ray, CT and MR. It images well with all MRI sequences tested to date, including T1 weighted, T2 weighted, 3D Time of Flight, MPRAGE and CISS.



CT image



MR image



CT of entire head

Items Included with SRS MR Distortion Phantom (Model 603-GS)

Quantity	Description
1	SRS MR Distortion Phantom
1	ABS Cradle
-	Unlimited scans using MRI Distortion Check Software for 2 year period
1	Custom carry case
2	User guides
1	SRS Frame Support Cups (set of 4)

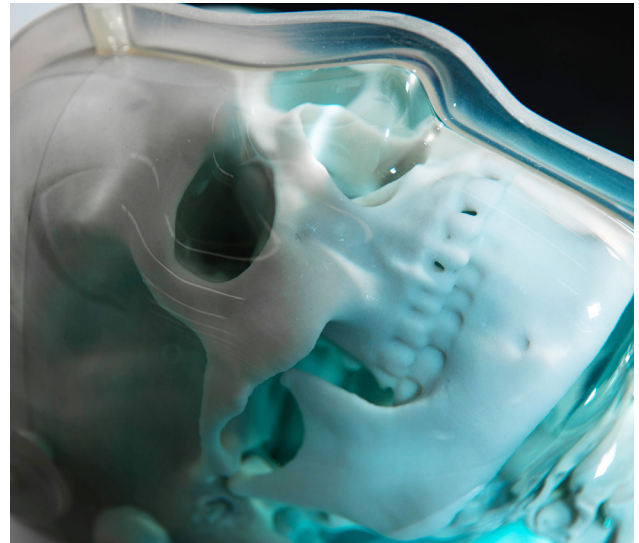
Note: For image fusion, a kit including a CT image dataset along with the standard components listed above is available (Model 603-GS-035 Kit).

CT Specifications

Image Format	DICOM
Slices	Axial
Slice Thickness	0.625 mm with 0.625 slice spacing
Field of View	250 mm
Image Matrix	512 x 512
Number of Slices	190-225. Includes entire grid-cervical spine
Energy	120 kVp at 150 mA minimum

General Specifications

Dimensions	32 cm x 24 cm x 18 cm
Weight	12 lbs (5.5 kg)
Materials	Skull: Plastic based bone substitute Soft Tissues: Water based polymer Grid: Reinforced nylon



Intricately detailed anatomical skull