Caution:

Don't mark on the phantom with pen or leave printed materials contacted on its surface.
Ink marks on the phantom will be irremovable.

US-2

Ultrasound Quality Assurance Phantoms

Multipurpose Phantom N-365

Instruction Manual

Contents

KYOTO KAGAKU

Please read General information

N-365 Multipurpose Phantom

Useful both for daily assessment and further research. Gray scale for contrast evaluation, cyst targets with non-resonance cylinders, line targets for geometrical evaluation, close range (dead zone) resolutions, axial and lateral resolutions are prepared for scanning.
The phantom is designed to allow scanning from all four side walls.

Features

Durable and stable, KYOTO KAGAKU original phantom material does not change in property or in shape over times, allowing reliable periodical quality check always with the same phantom.
The phantom material also excels in its homogeneous granular background reflection.

⚠ DOs and DON'T s

DO s

Handle with care.
The materials for phantom and models are special composition of resin. Please handle with care at all times.

Cleaning and care
Clean the phantom completely every time after the training.
Keep the phantom at room temperature, away from heat, moisture and direct sunlight.
After use, wipe off any moisture and dry thoroughly.

DON'Ts

Never wipe the phantom or models with thinner or organic solvent.

Don't mark on the phantom with pen or leave printed materials contacted on their surface.

Ink marks on the models will be irremovable.

Don't soak this phantom in water.

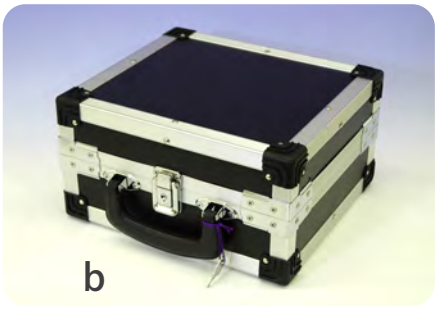
Please note: The color of the phantom may change over time, though, please be assured that this is not deterioration of the material and the radiographic features of the phantom stay unaffected.

Please read

Set includes Specifications

Set includes

Before your first use, please ensure that you have all components listed below.



a phantom
b carrying case

phantom size:
19 x10x22cm, 3.6kg

Specifications

material: Urethane elastomer, acryl, nylon

Sonic velocity: 1432 m/sec (25 degrees C)

attenuation rate: 0.59 dB/cm MHz (25 degree C)

acoustic impedance: 1.38 Rayl (25 degree C)

Axial resolution Angular resolution

Depth at 15,30,50mm
Target diameter: 0.05mm
Interval between target: 0.5,1,2,3,4mm

Cyst targets

Target diameters: 1, 2, 3, 4mm
Axial interval between targets:
10, 30, 50, 70, 100, 150mm

Gray scale

Target depth: 20mm
Target diameter: 10mm
Interval between targets:12.5 mm
Echogenicity: 7 steps

Close range resolution

Depth range of 1-10 mm depth
(10 targets are embedded)
Target diameter: 0.1mm
Interval between target: 5 mm

String targets

Target diameter: 0.1mm
Axial Interval between targets:
10, 30, 50,70,150mm
Horizontal interval between targets:
1, 2, 3, 4, 5, 10mm

Specifications are subject to change.

1 Quality Control with N-365

① Before you start your periodic checking, wait more than 15 minutes after turning on the main power to your ultrasound scanner.

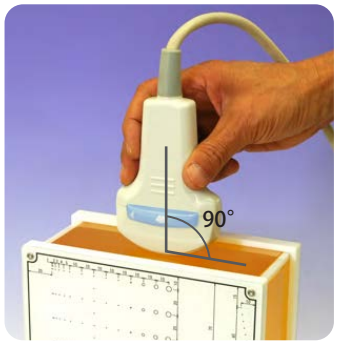
② Ensure to scan the phantom always at the same phantom temperature shown on the thermo mentor on the phantom wall, since the speed of the sound may depend on the temperature.The higher temperature makes the sound speed slower

To stabilize the temperature, it is recommended to keep the phantom under the room temperature more than 6 hours before scanning.

③ Apply water or gel to the measurement area.

Ensure to hold you prove completely straight and vertically against the targets you intend to scan.

Record the image when the targets shown the smallest, or you recognize the highest resolution.



④ At the time of your first checking, find the optimal gain so that all gray scales targets can be shown clearly and record the setting. Then use this gain for all other targets and use the same setting for your second periodic checking and after.

⑤ To monitor the change of device across the ages, compare the latest date with the first time checking data created with the same setting and procedures.

Be sure to determine and record the system setting for periodical quality assurance test, at the time of primary test or other test to document baseline performance. The system setting can vary depending on the system and the transducers.

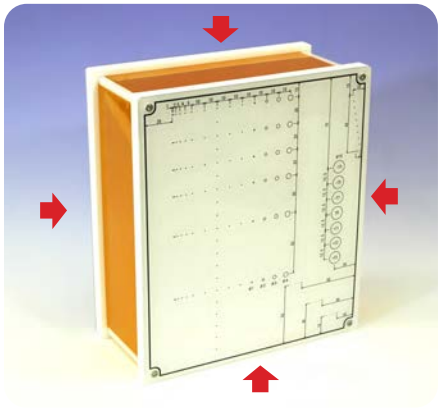
2 After Training

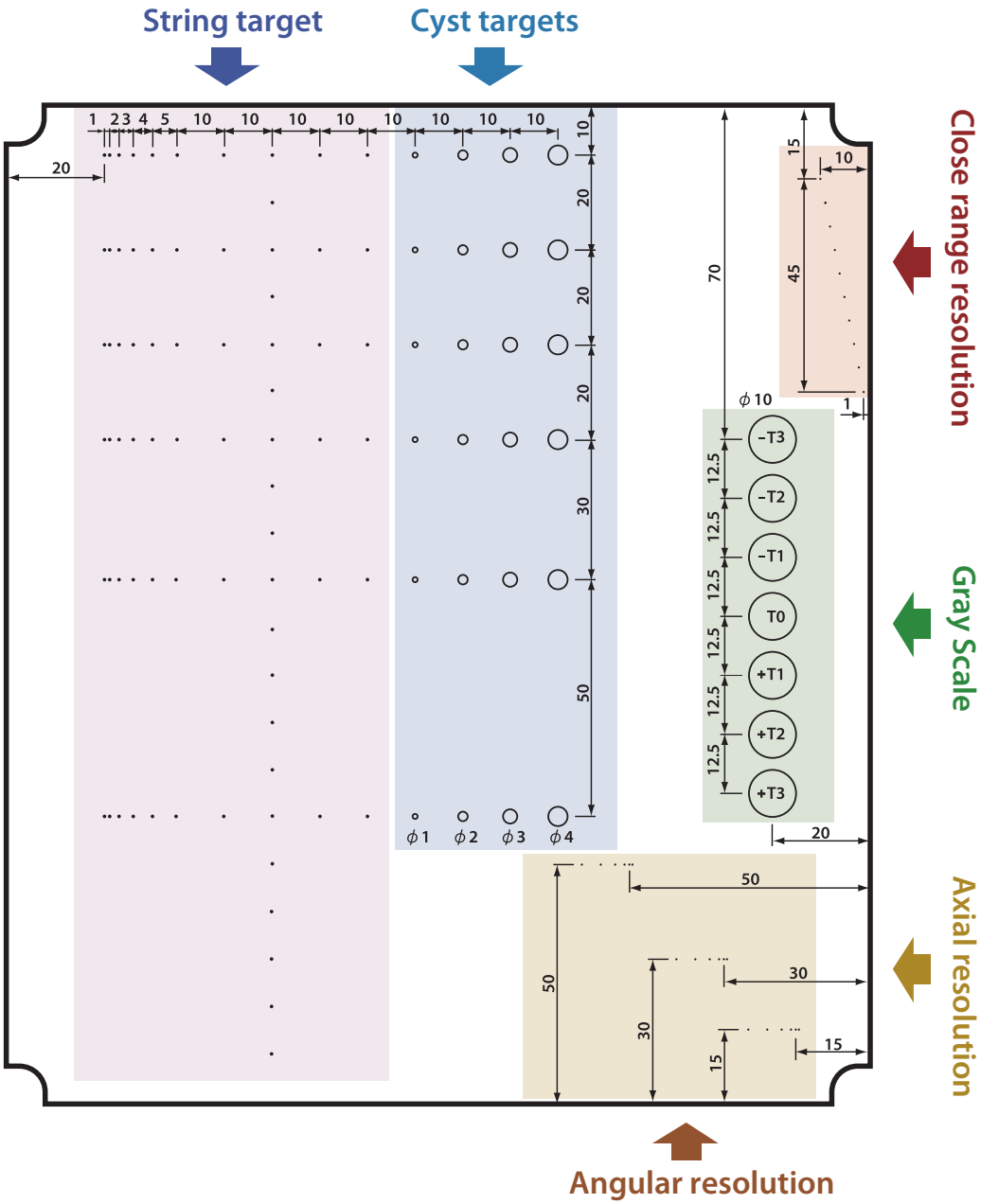
After use, wash with water and then carefully wipe off any moisture with a dry cloth.

Dry thoroughly before storing in the case.

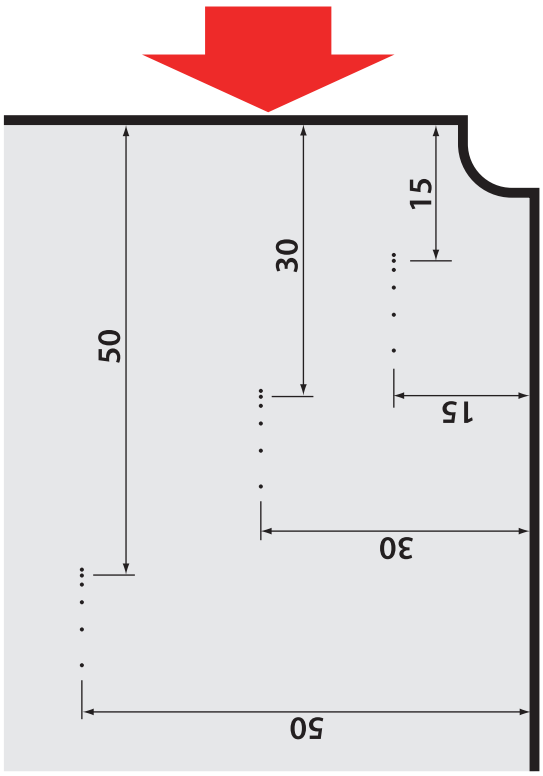
Targets layout

This phantom is designed to allow scanning from all 4 side walls.





Axial resolution

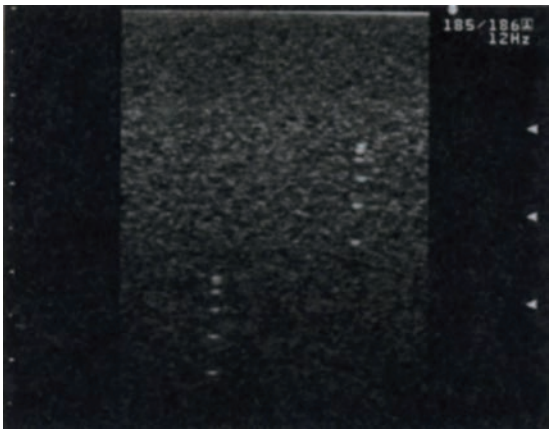


Use the same target as 'angular resolution

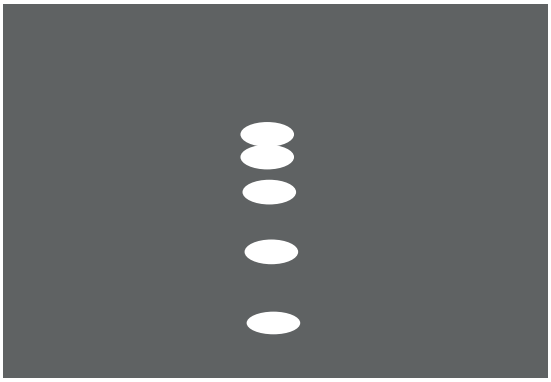
Depth of the shallowest targets: 15,30,50mm depth

Target diameter: 0.05mm

Spaces between targets: 0.5,1,2,3,4mm



Linear Probe Image

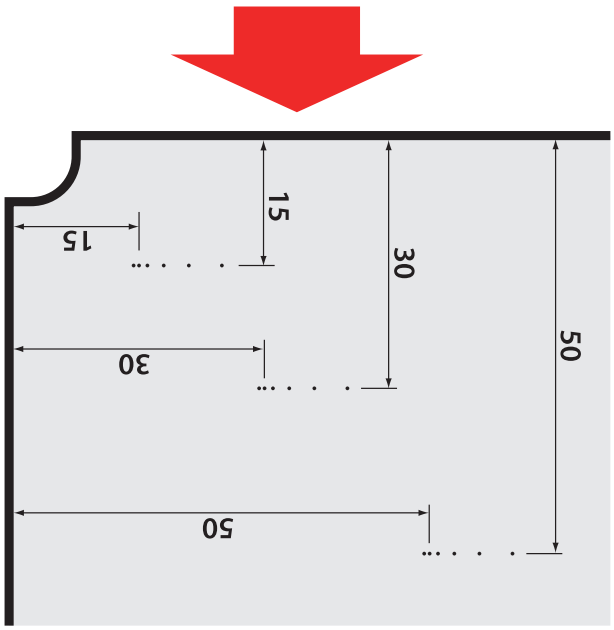


Example

Axial resolution:1mm

2 targets with 0.5mm clearance are not recognized separately.

Angular resolution

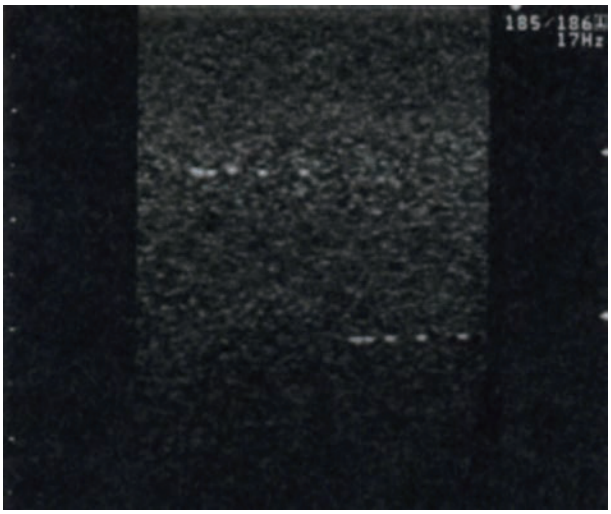


Use the same targets as axial resolution

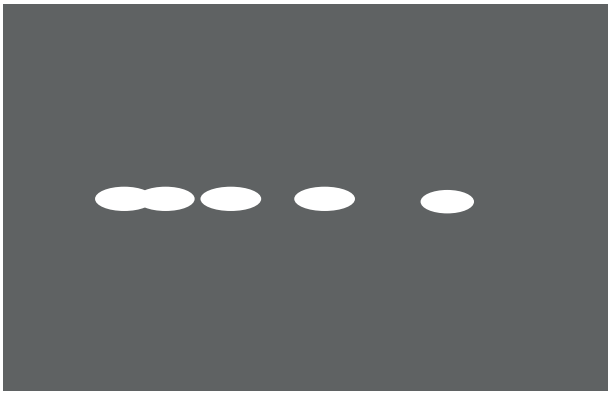
Depths: 15,30,50mm depth

Target diameter: 0.05mm

Spaces between target: 0.5,1,2,3,4mm



Linear Probe Image

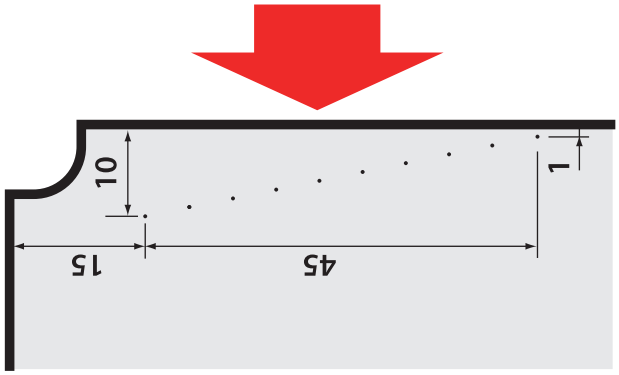


Example

Angular resolution:1mm

3 targets with 0.5mm, 1mm clearance are not recognized separately.

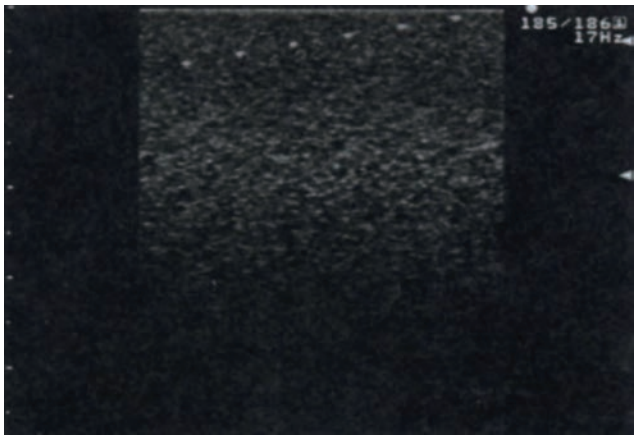
Close range resolution



Depth range of 1-10 mm depth (10 targets are embedded)

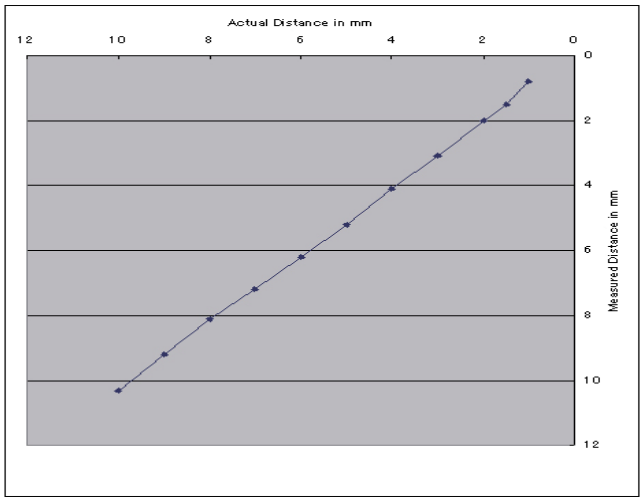
Target diameter 0.1mm

Spaces between target :5 mm



Linear Probe Image

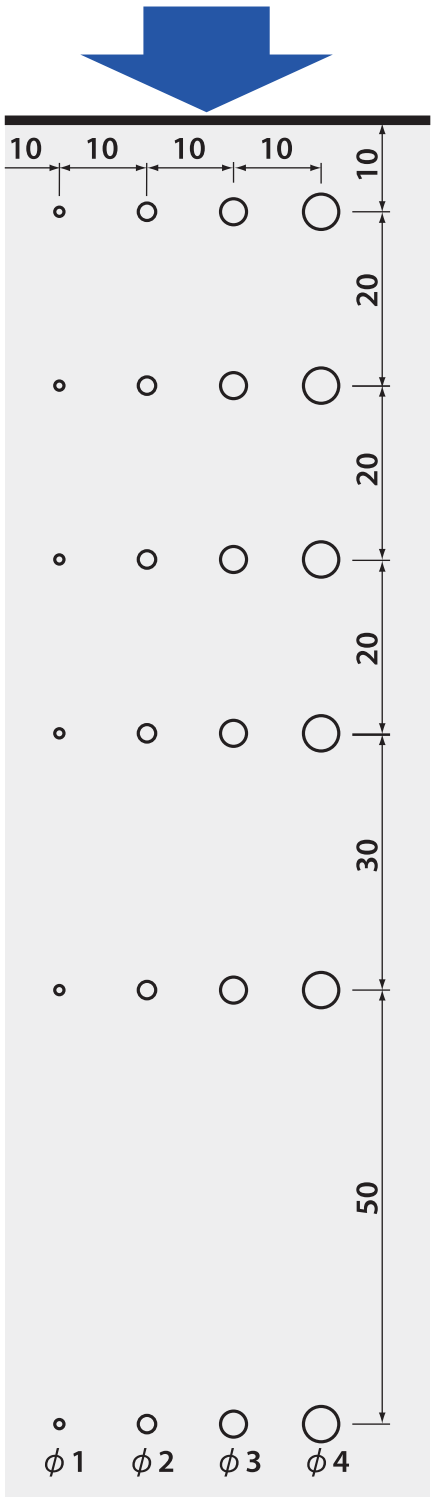
Scan the targets with the minimum depth of the view setting and identify the target visible at the shallowest point.



Example

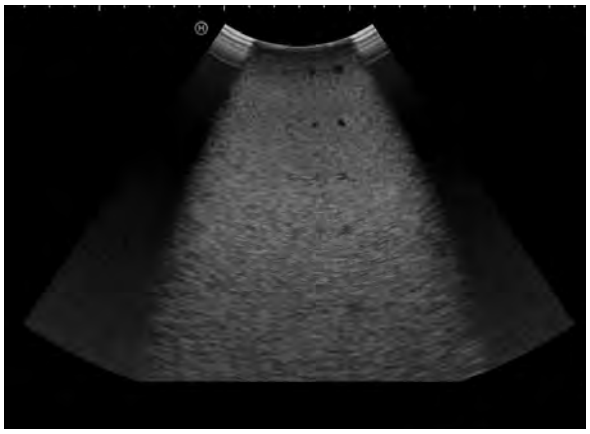
Graph showing relationship between the actual depth of targets and the results of automatic measurement by an instrument.

Cyst targets



Target diameters 1, 2, 3, 4mm

Target depths: 10, 30, 50, 70, 100, 150mm



Convex Probe Image

Find the deepest point where the non-resonance cyst targets in various diameters are visible against the background of speckle pattern.

This phantom is designed to allow the scanning from 4 sides, which provides more variety of checkup options.

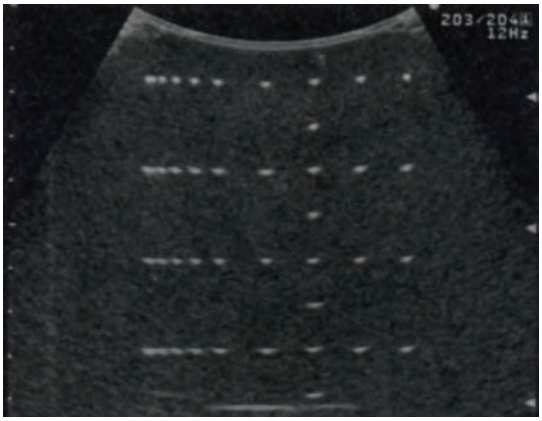
String targets

Target diameter: 0.1mm

Target depths: from 10 to 200mm

Spaces between targets: 10mm

Horizontal spaces between targets: 1, 2, 3, 4, 5, 10mm

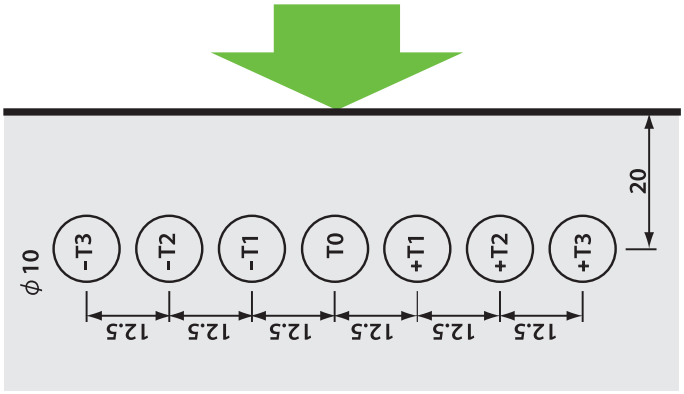


Convex Probe Image

Measure the intervals between the targets and compare the result with actual distances.

This phantom is designed to allow the scanning from 4 sides, which provides more variety of checkup options.

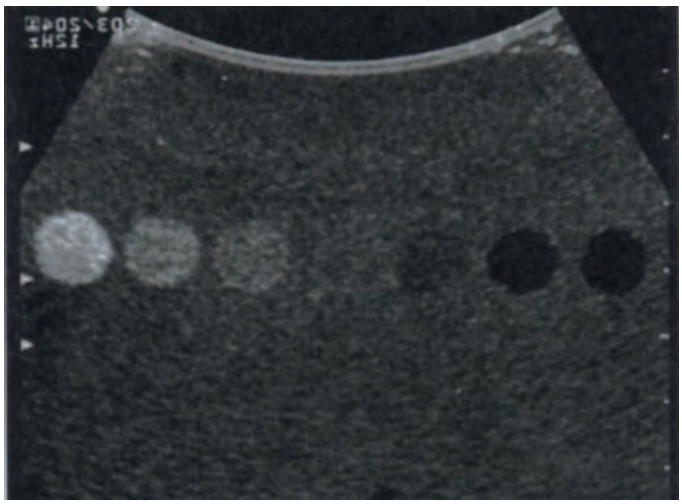
Gray scale



Target depth 20mm

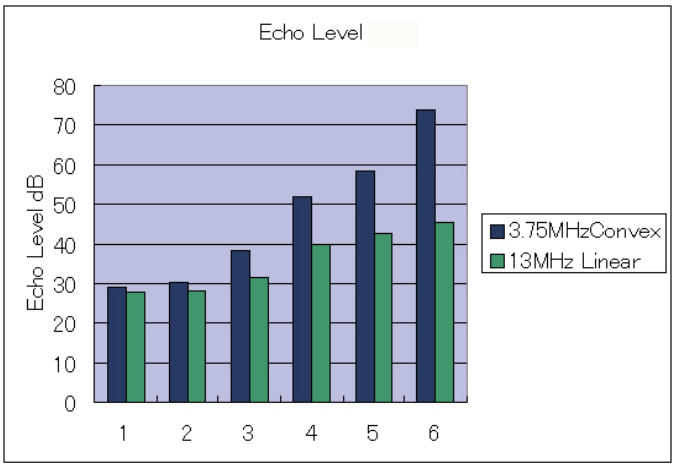
Target diameter 10mm

Spaces between targets :12.5 mm



Convex Probe Image

Echogenicity: 7 steps



Example

A graph created by histogram function of an instrument.

⚠ Caution Don't mark on the phantom with pen or leave printed materials contacted on its surface. Ink marks on the phantom will be irremovable.

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2022.05