



Caution

Do not mark on the model and other components.
Neither pen on models nor leave models on the surface of printed materials.
Ink marks on the models cannot be removed.

PH-78

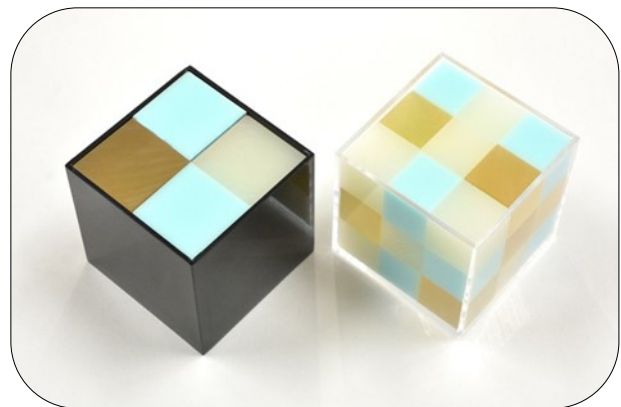
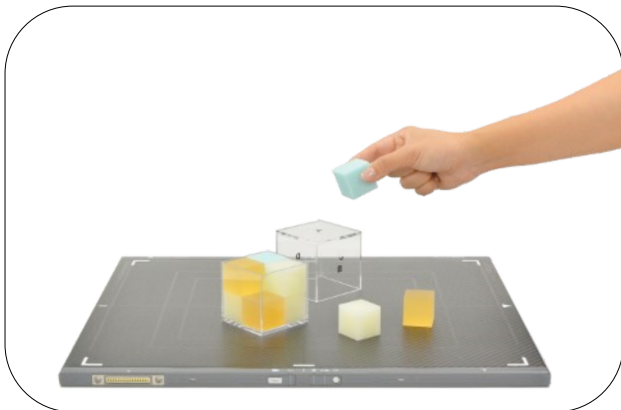
Radiological Cube Phantom

XCUBEFAN

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Radiological Sciences
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Instruction Manual

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Manufacture's Note

PH-78 Radiology Cube Phantom XCUBEFAN is designed for beginners in radiology to facilitate understanding of characteristics of radiology imaging.

Before using

This phantom has been developed for the training of healthcare professionals only. Any other use, or any use not in accordance with the enclosed instructions, is strongly discouraged. The manufacturer cannot be held responsible for any accident or damage resulting from such use. Please use this model carefully and refrain from subjecting to any unnecessary stress or wear. Should you have any questions on this simulator, please feel free to contact our distributor in your area or KYOTO KAGAKU at any time. (Our contact address is on the back cover of this manual)

Feature

Three types of phantom cubes, with respective radiology absorption rate for each type, are to be three dimensionally arranged in the cuticular container. Trainees are to radiograph the box(es) with different angles and then to analyze the acquired images to reconstruct the arrangement of the cubes.

Training tips

XCUBEFAN aims to cultivate creativity, ability of reasoning and mind of team players in training of radiographers. The discussion in the team over the images acquired using the phantom is practice of active learning. You will find a training example of "Black Box Competition" on page 4-5 of this manual. You can create many other training plans. Possibility of the use of this phantom is unlimited. Create your own training plans and scenarios for exiting learning experience.

Precaution

● **Handle with care.**

Handle the phantom and the components with care.
Do not drop them or let hard or sharp object drop on the phantom. Avoid organic solvents

● **For cleaning, use water or mild detergent.**

For cleaning, wipe the phantom with wet soft close, using water or mild detergent. Never use organic solvent such as paint thinner.

● **Avoid high temperature and high humidity for storage.**

When not in use store the phantom avoiding high temperature, high humidity and direct sunlight. Exposure to such elements can lead to deterioration or deformation of the materials.

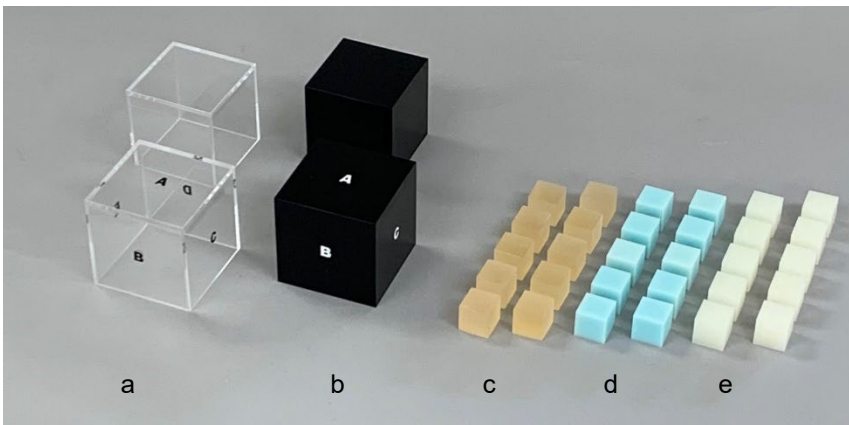
● **Do not write or mark the phantom with pens.**

Do not let ink from pens, newspapers, this manual or other sources contact with the phantom, as such marks cannot be cleaned off.

Set of Includes

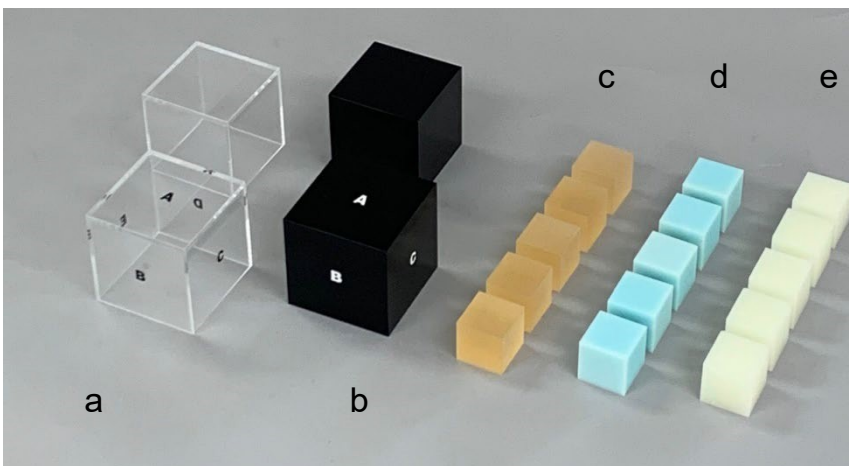
Before you start, ensure that you have all components listed below.

20mm Cube Set (Item Code 41944-100)



- a. XCUBE-FAN CASE (Clear) 1
- b. XCUBE-FAN CASE (Black) 1
- c. orange cube(20mm) 10
- d. blue cube(20mm) 10
- e. yellow cube(20mm) 10

30mm Cube Set (Item Code 41944-000)



- a. XCUBE-FAN CASE (Clear) 1
- b. XCUBE-FAN CASE (Black) 1
- c. orange cube(30mm) 10
- d. blue cube(30mm) 10
- e. yellow cube(30mm) 10

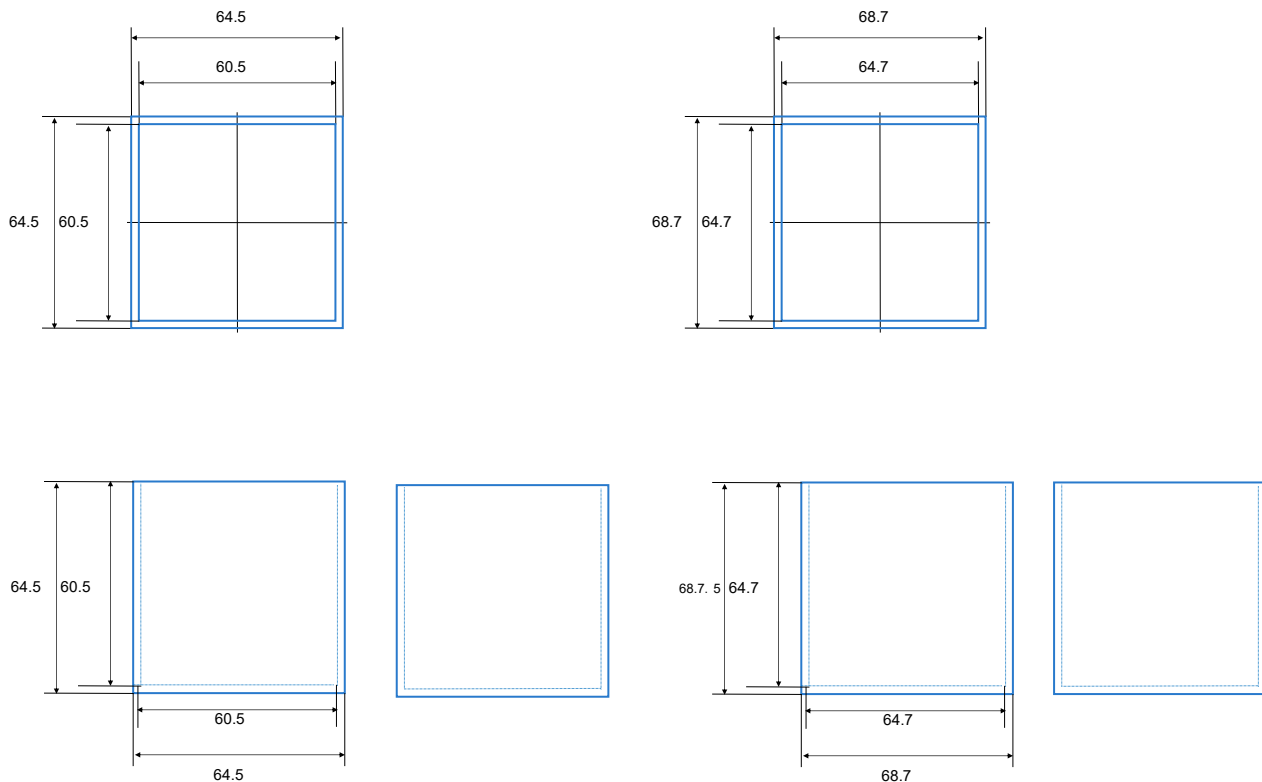
Dimensions and Materials

Dimensions

20mm Cube : 20×20×20mm each

30mm Cube : 30×30×30mm each

XCUBEFAN Case (Clear, Black)



Materials

HU	Density	Materials	Color
Approx. 0	1.06	Polyurethane	Orange
Approx. 500	1.4	Epoxy Resin	Blue
Approx. 1000	1.21	Epoxy Resin	Yellow

Orientation

- Share goals and schedule with participants.
- Orientation about X CUBEFAN
- Group participants into teams of 3 people each.

Items to prepare

- Radiology Cube Phantom X CUBEFAN
- X-ray system
- Positioning pillows
- Light box

Step 1: Arrangement of Cubes

- Arrange the cubes into the X CUBEFAN case.
- Record the arrangement of cubes .

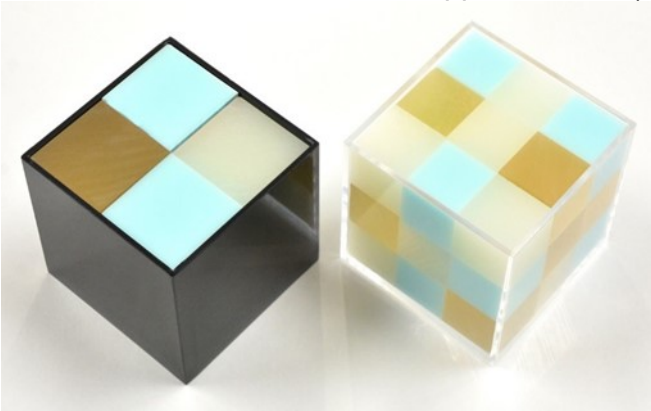
Figures in next page is a sample of the recording paper.

1) Invent the arrangement that is difficult to analyze for other teams, then arrange the cubes in the case.

* The clear type case is to be used as tools for discuss and presentation.

* The black type case is to be used for Step 2, imaging the phantom

2) After finish the arrangement of cubes in the black type case, put the lid and exchange the boxes with the other opponent team(s).

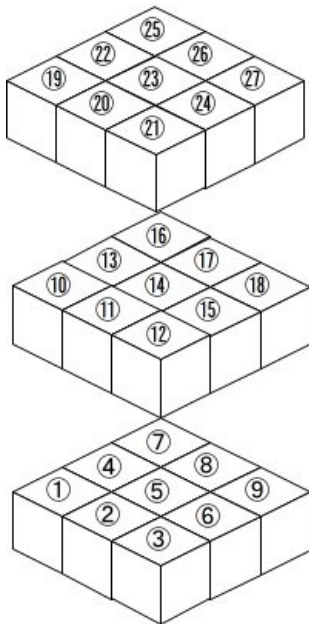


Training

Team competition to learn Black Box Competition

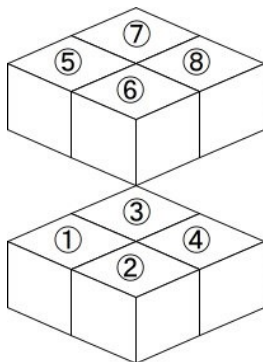
HU	Density	Materials	Color	Symbol
Approx. 0	1.06	Polyurethane	Orange	
Approx. 500	1.4	Epoxy Resin	Blue	
Approx. 1000	1.21	Epoxy Resin	Yellow	

20mm Cube Set



1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27

30mm Cube Set



1	2	3	4
5	6	7	8

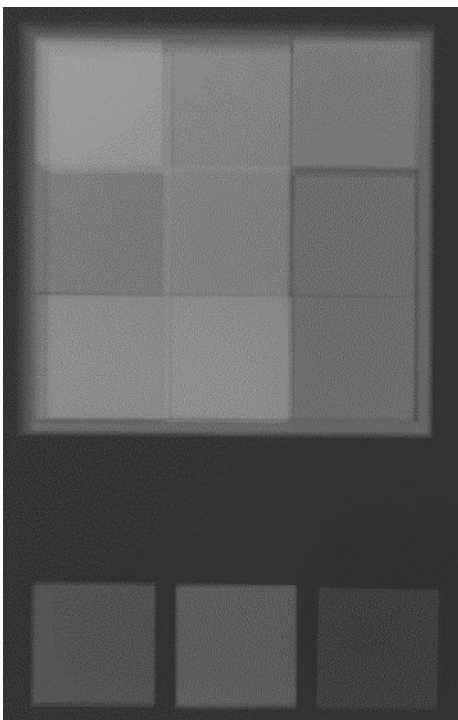
Step 2 : Selecting parameters, acquiring images

- Selecting parameters (example : CR)
 - Basic setting : SID 100cm/100KV/100mA/0.02s
 - Image processing : A gradation (liner gradation) / Sensitivity 100 / Latitude 2.0
 - Number of shooting : within nine times (recommended)
- Positioning the phantom
- Acquiring images

Set the maximum numbers of shooting for the competition.
Set appropriate maximum possible numbers for shooting depending on the level of trainees, to promote the skill required to minimize the number of shooting and thus to reduce examination time and radiation exposure to patients.

Step 3 : Analyzing the acquired images

- Analyze the acquired images using light box and densitometer.
- Prepare the answer.
- Calculate accuracy rate of each team and the team that accuracy rate is the most high is the winner.
- Have a group discussion to rise the skill level required.



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Please contact manufacturer with any discrepancies in this manual or product feedback. Your cooperation is greatly appreciated.

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