Positron Emission Mammography

PEMGRAPH

miraimaging

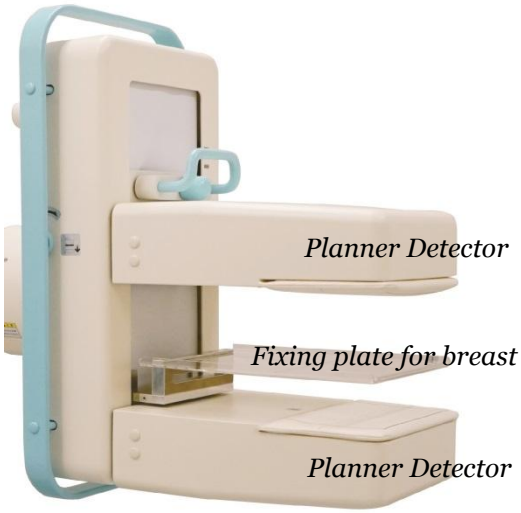
MIRAIIMAGING INC.

The pair of opposite scanners dedicated for the breast can get images of the distribution of the positron-emitting radionuclide, which is introduced into the body on a biologically active molecule for the whole-body PET scanning.
PEMGRAPH is not necessary to compress the breast and a high sensitivity and a high spatial resolution are realized.

Features

Dedicated for breast cancer detection

PEMGRAPH has a pair of planer detectors with the size of $14 \times 20cm^2$ and one of them is able to be moved. As the distance of two detectors is optimized according to the breast size, the sensitivity can be increased and the random errors are deceased.

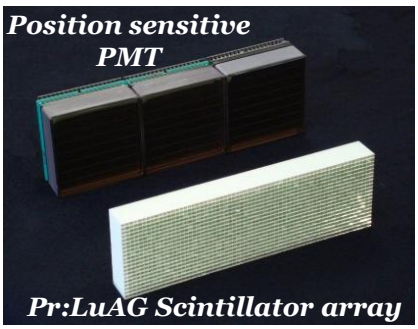


No compression

PEMGRAPH does not need to compress the breast like the X-ray mammography. To avoid a position shift of the breast caused by the breathing and to put it on the active area as much as possible, fixing plate was installed.

High sensitivity and high spatial resolution

Our original Pr-doped $Lu_3Al_5O_{12}$ (Pr:LuAG) scintillator crystals were used, which has good timing properties. By optimized the size of pixelated scintillators, the spatial resolution of 2.5mm was realized. And as the scintillator arrays were installed in whole $14 \times 20cm^2$ active area, the sensitivity could be increased and a fast scanning time of 3 minutes was achieved.



Compact and make user friendly

As the control of detector angles and positions can be done without any drive motors, a compact system was realized. Also optimal angles and positions of the detector can be set speedy and smoothly.

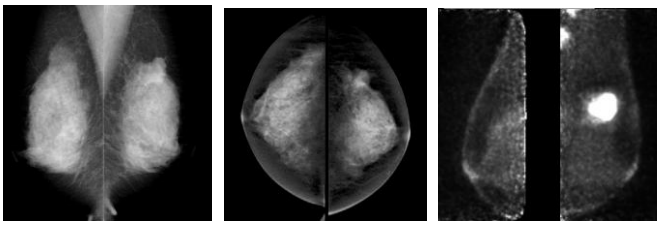
Positioning



As PEM scanning positions is similar to that of the X-ray mammography, it is possible to compare images getting each modality.

PEMGRAPH Scanning Images*

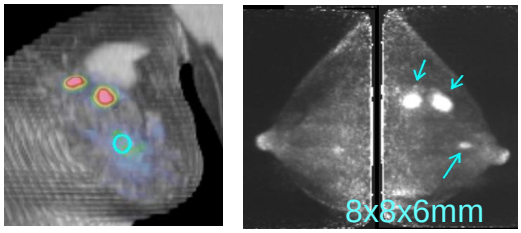
MMG (ML) MMG (CC) PEM



Dense Breast

The tumor is clearly visible with PEM, but is unclear with X-ray mammography.

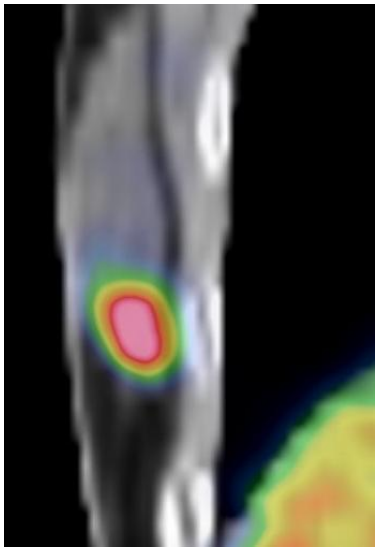
PET PEM



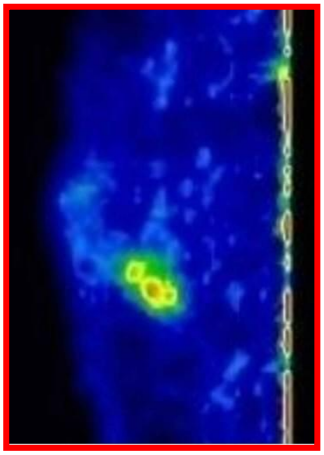
High Resolution

PEM shows three tumors but PET shows only two tumors. PET-CT does not show 8x8x6mm tumor.

PET-CT



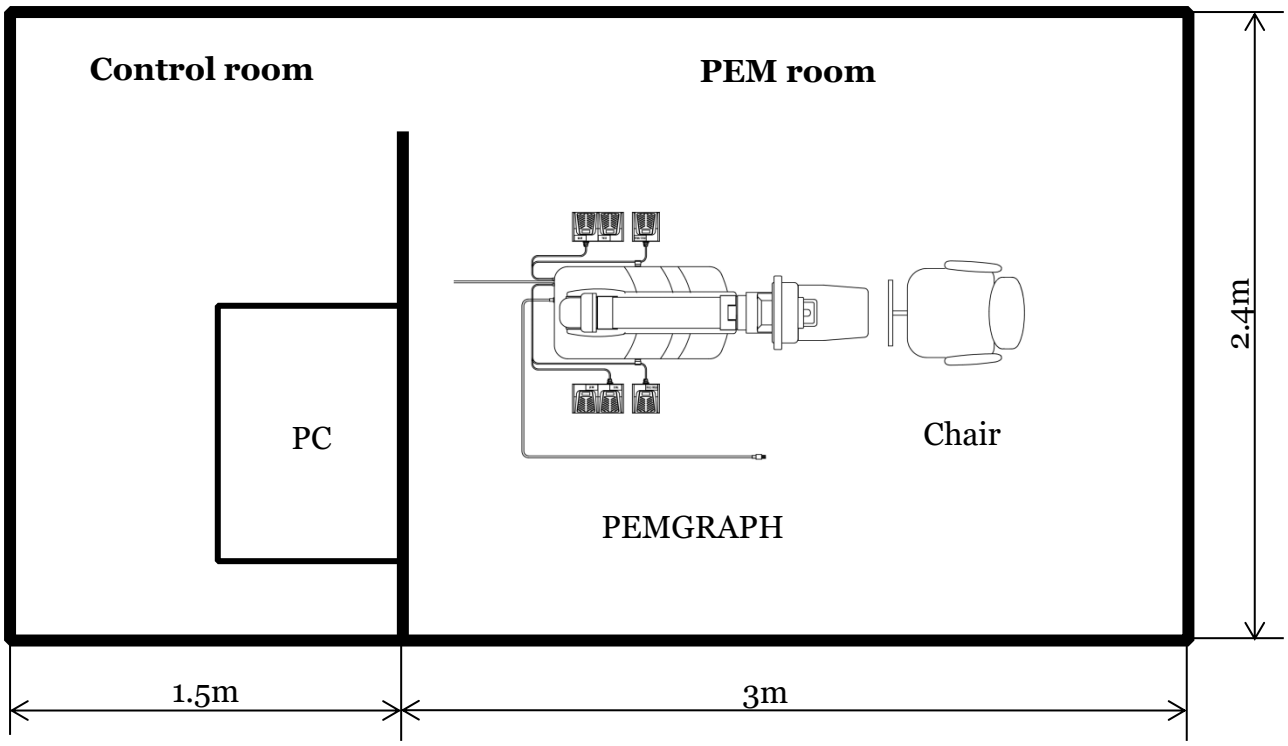
PEM



Three small foci are evident in the PEM image while only a round nodule is detected in PET images.

*Sendai Medical Imaging Center and KKR Tohoku Kosai Hospital

Layout



PEMGRAPH®

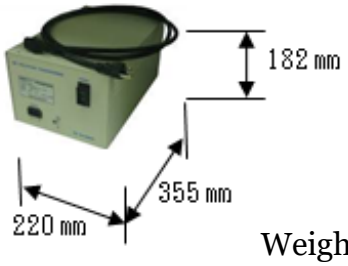
Japan Pharmaceutical Affairs Act Approved：22600BZX00513000

Weight: 350kg
Size: 466mmW × 1675mmH × 1456mmD

Accessories

Monitor: 2
PC: 3
Keyboard: 1
Mouse: 1

Isolation transformer



Weight: 16kg

miraimaging

MIRAIIMAGING INC.

URL:http://www.mirai-imaging.com
Contact:info@mirai-imaging.com