The results of our simulation have measured values as the parameters of PSF. It was found that errors in the image can be introduced by a 0.0cm shift in phantom position. But amount of errors is affected by duration of movement during scan. It was found that the errors were less than 10% when the time of movement was 10% of the scan time. So means to watch patient should be used. We introduced the patient monitor using commercially available video sensor and LED put on patient's head. Reliability of the monitor was verified at brain studies. Deviation can be kept within the range of 2-3mm. The patient monitor seems to be useful to catch the deviation quickly and get images of high reliability.

Manufacturers of unit activity exists at x, y, z. The patient monitor seems to be useful to move the patient half the slice interval in z-axis and perform an "interpolating scan".

The performances of positron CT device "Shimadzu SET 130W" were evaluated. It has three detector rings and five slices can be obtained simultaneously. Each ring has 160 BGO detectors (13.4 x 25 x 30 mm). The collimator systems for brain consist of SNA (standard) and RNA (high resolution). The results were follows:

1. Spacial resolution in the center of the image field
   a) radial FWHM (mm)
      - direct plane: SNA 8.2, RNA 6.6
      - inter plane: SNA 8.2, RNA 6.5
   b) tangential FWHM (mm)
      - direct plane: SNA 8.6, RNA 6.2
      - inter plane: SNA 8.2, RNA 6.8

2. Slice thickness in the center of the image field (FWHM, mm)
   - direct plane: SNA 13.1, RNA 13.0, RNA 14.6
   - inter plane: SNA 3, RNA 3

3. Sensitivity (kcp/s/μCi/ml)
   - direct plane: SNA 44, RNA 29
   - inter plane: SNA 87, RNA 58
   - direct plane: SNA 53, RNA 34