Dose distribution generated from $^{131}$I radionuclide using SPECT-CT

We designed and constructed an acrylic phantom (Figure 1) for measurement. Figure 2 shows the result of the glass dosimeters measurement and the Monte Carlo simulation. We got the radioactive iodine distribution using CT value data and SPECT data (Figure 3&4). Figure 5 shows the ratio of the radioactive iodine distribution using SPECT divided by that of using CT density value data. The cross sectional value at the center is shown in Figure 6, in which the significant difference is observed inside the 2.2 cm radius indicated by red vertical lines.