In this work, the energies and intensities of gamma rays in the radioactive decay of ⁸³Rb were measured. The intermediate product, ^{83m}Kr, is an important calibration source for several experiments. For the measurements, germanium (HPGe) and silicon (SiLi) detectors were used and calibrated with the radioactive standards ⁵⁵Fe, ¹³³Ba, ¹⁵²Eu and ²⁴¹Am. Part of the work was also to measure the shielding caused by the emitters housings and the escape of ^{83m}Kr gas from the sample before its decay. The DEIMOS program was used for the primary processing of the measurements.