In the present work we studied Pr, Sc co-doped and Eu-doped Lu3Al5O12 thin epitaxial garnet layers prepared by liquid phase epitaxy (LPE) on Y3Al5O12 (YAG) and Lu3Al5O12 (LuAG) single crystalline substrates. In the process of growth BaO - BaF2 - B2O3 (Pr, Sc co-doped layers) and PbO - B2O3 (Eu-doped layers) fluxes were used. These materials are considered perspective scintillators with high density, fast scintillation response, high quantum efficiency and good chemical and mechanical stability. They are used in a number of applications in which high spatial resolution is required. The absorption, emission and excitation spectra of experimental samples were measured and investigated. Our attention was focused especially on the study of influence of Sc3+ ions on the emission properties of Pr3+ ions in epitaxial layers which mutually contain various amounts of concentrations of dopants. The Sc3+ ions do not show any radiative transitions in visible and UV spectral regions, but they increase the scintillation response of Pr3+ ions. This phenomenon is caused by overlapping of the Sc-related emission around 275 nm with the 4f-5d absorption band of Pr3+ centers. By measurement of radioluminescence this energy transfer from Sc3+ to Pr3+ activator centres was confirmed.