Diffraction light measurements of emission europium in a waveguide of planar metallic walls. ALDO S. RAMIREZ DUVERGER, RAUL ACEVES, RAUL GARCIA-LLamas, JORGE GASPAR-ARMENTA, VLADIMIR RAMIREZ, Universidad de Sonora — Experimental results of diffraction light measurements of europium ions emission in a MgF$_2$ waveguide between Al metallic walls are reported. In this structure the reflected light is confined to travel along the guide. From the spectral reflection curves were determined the conditions of better coupling mode - incident light. The luminescence of Eu$^{2+}$ in polycrystalline MgF$_2$ and in the waveguide was found to have a maximum at 440 nm. This emission was ascribed with electronic transitions of Eu$^{2+}$ ions dipoles on a lattice of MgF$_2$. For an excitation light of 360 nm, the integrated emission versus incident angle was measured to find the incident angle were the emission reach their maximum value. This behavior is explained because for that excitation light and incident angle a guided mode along the waveguide is produced and more emitters are excited in the optical path of the reflected light.

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