Polarizabilities of an Annular Cut in the Thick Wall, S. KURENNOY, Univ. of Maryland, USA - The electric and magnetic polarizabilities of an aperture are its important characteristics in the theory of aperture coupling and diffraction of EM waves. The polarizabilities of the aperture having a form of a ring-shaped cut in the plane wall of an arbitrary thickness are calculated by solving corresponding electrostatic or magnetostatic problems using a combination of analytical variational and numerical methods. The dependences of the polarizabilities on the aperture parameters and on the wall thickness are presented. The results are applied to estimate the beam coupling impedances of button-type beam position monitors.