

**Higher-Order Mode (HOM) Characteristics of the Choke-Mode Cavity for the KEK B-Factory (KEKB), T. KOBAYASHI,** Institute of Applied Physics, Tsukuba University, K. AKAI, N. AKASAKA, E. EZURA, T. KAGEYAMA, H. MIZUNO, F. NAITO, H. NAKANISHI, Y. TAKEUCHI, Y. YAMAZAKI, KEK - A prototype of the HOM-damped cavity has been constructed and high-power tested for the KEK B-Factory. In order to investigate the HOM characteristics of this cavity, the electromagnetic fields were measured along the beam axis. Since almost all of HOM's are strongly damped as designed, only several modes could be measured. The difference between the measurements and the calculations will be discussed. The HOM's, the frequencies of which are located near the stop band of the choke filter, will be damped by the "beam-pipe damper." It is basically a radial-line waveguide (gap 20 mm) connected with the beam pipe. Since the waves will be reflected back at the end of the RF straight section, the damper is located at the standing-wave maxima of most dangerous modes. The longitudinal coupling impedances of the HOM's for this system were calculated with both frequency-domain and time-domain methods by using the 'MAFIA'. At the present optimization the performance barely meets the requirement.