The Double Chooz Experiment presents an indication of reactor electron antineutrino disappearance consistent with neutrino oscillations. A ratio of 0.944 ± 0.016 (stat) ± 0.040 (syst) observed to predicted events was obtained in 101 days of running at the Chooz Nuclear Power Plant in France, with two 4.25 GWth reactors. The results were obtained from a single 10 m^3 fiducial volume detector located 1050 m from the two reactor cores. The reactor antineutrino flux prediction used the Bugey-4 measurement as an anchor point. The deficit can be interpreted as an indication of a non-zero value of the still unmeasured neutrino mixing parameter sin^2(2 theta_13). Analyzing both the rate of the prompt positrons and their energy spectrum we find sin^2(2 theta_13) = 0.086 ± 0.041 (stat) ± 0.030 (syst), or, at 90% CL, $0.015 <$ sin^2(2 theta_13) < 0.16.