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The Hamiltonian guiding center drift orbit formalism is used which permits the efficient calculation of ionic trajectories perturbed by a fast-wave in a stochastic magnetic field. The magnetic field is assumed to be a small perturbation from a zero-order "equilibrium" field possessing magnetic surfaces, toroidal symmetry and modeled analytically. A numerical code based on the formalism is used to analyze the effect of the magnetic field perturbation on the ion cyclotron range of frequencies (ICRF) heating in a collisionless Tokamak plasma. We have already pointed out that magnetic field line stochasticity (MFLS) is a parameter on which the single resonant particle orbits and heating depend sensitively. In order to investigate and assess the effect of the MFLS on the hot tail structure in the ion velocity distribution, we consider the heating of one hundred one-kev ions lying on the same initial flux surface, all at the same initial angular position but equally distributed in the phase term gamma=omega(0)*t.omega(0) and t refer respectively to the ion cyclotron frequency on magnetic axis and the time. We then translate the distribution of the surface-of-section crossing points into a particle velocity distribution by averaging over many gyro-periods the magnetic momentum of the particles. This procedure has been performed over about 22000 gyro-periods. Numerical calculations reveal that in addition to increasing the threshold for the onset of stochasticity, the effect of magnetic field stochasticity shift the tail structure to higher values of the velocities.

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