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We calculate the frequency dependent fluctuation conductivity near the classical phase transition into a superconducting phase in the presence of randomness in the critical temperature. Starting form the standard Ginzburg-Landau approach, we use the Kubo formalism to consider how the conductivity is affected by the random mass term close enough to T_c. The disorder is taken into account in the simplest way that involves the calculations of the disorder averaged Green's functions, describing the propagation of superconducting fluctuations, in the self-consistent Born approximation. We present the results of calculation for different values of small cut-off frequencies and strengths of disorder, both above and below T_c. The results demonstrate that this type of randomness leads to the broadening of the microwave conductivity peak at $T = T_c$.