NONLINEAR REGIME OF PROPAGATION OF POWERFUL SINGLE AND SUCCESSIVE MICROWAVE PULSES THROUGH INHOMOGENEOUS ATMOSPHERE

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Nonlinear regime of propagation of powerful single and few successive microwave pulses through the inhomogeneous atmosphere is investigated on the base of detail numerical model. It is shown, that ionization structure and energy dissipation rate of short pulse (length L=3 m) are in the depending on field tension, air density, and, significantly, ambient electron concentration. These parameters determine the most energy dissipation of pulse at the height 45 – 65 km, where electron concentration of air after the pulse crossing reaches the value of 10^{10} cm^{-3}. So far as the rate of recombination at these heights is small, ionization trace exist a long time enough to lead to dissipation of following pulses. The frequency of follow of pulses required to avoid the dissipation is defined by detail calculation of ionization kinetics in the trace of first pulse. Out of noted height range, the influence of ionization trace produced by first pulse on the propagation of next pulses is neglect.