In ground-based pseudolite positioning systems, it is a key issue to determine the position of the phase center of the pseudolite signal transmitting antennas in the coordinate frame of the positioning system. In this paper, a convenient method is proposed to resolve the problem of the position determination for the ground-based GPS-like pseudolite. At first, the pseudolite signal transmitting antenna acts as a GPS receiver antenna. So that the position of the phase center in the frame of antenna can be determined with the antenna exchange and rotation method. And then, the antenna is installed in the system, the position of the antenna reference point and the attitude of the antenna can be determined with conventional ground method. Finally, the position of antenna phase center can be transformed to the coordinate frame of the positioning system.