Planar two-dimensional (2D) and volumetric three-dimensional (3D) metamaterial-inspired efficient electrically-small antennas that are easy to design; are easy and inexpensive to build; and are easy to test; are reported, i.e., the EZ antenna systems. The proposed 2D and 3D electrical- and magnetic-based EZ antennas are shown to be naturally matched to a 50 source, i.e., without the introduction of a matching network. It is demonstrated numerically that these EZ antennas have high radiation efficiencies with very good impedance matching between the source and the antenna and, hence, that they have high overall efficiencies. The reported 2D and 3D EZ antenna designs are linearly scalable to a wide range of frequencies and yet maintain their easy-to-build characteristics. Several versions of the 2D EZ antennas were fabricated and tested. The measurement results confirm the performance predictions. The EZ antennas systems may provide attractive alternatives to existing electrically-small antennas.