CLAIMS

1. A printed dipole antenna, comprising:

a dielectric substrate;

a plurality of antenna elements on the dielectric substrate, wherein each of the antenna elements is configured to generate resonant modes in a different section of a radio-frequency spectrum to provide wideband antenna capabilities, and wherein the different sections of the radio-frequency spectrum comprise a first frequency spectrum of between 600 megahertz (MHz) and 960 MHz, a second frequency spectrum of between 1,700 MHz and 2,800 MHz, and a third frequency spectrum of between 3,500 MHz and 6,000 MHz;

a reference ground on the dielectric substrate;

a signal excitation port coupled to the antenna elements, wherein the signal excitation port is arranged to receive a first feed cable;

a first ground port coupled to the reference ground, wherein the first ground port is arranged to receive the first feed cable; and

a second ground port coupled to the reference ground, wherein the second ground port is arranged to receive a second feed cable to be utilized as a current return or for grounding.

2. The printed dipole antenna of claim 1, wherein the second frequency spectrum is between 1.71 gigahertz (GHz) and 2.80 GHz.

3. The printed dipole antenna of any one of the preceding claims, wherein the antenna elements comprise a plurality of first decoupling loops, the first decoupling loops being decoupled from one another in a signal conduction path.

4. The printed dipole antenna of claim 3, wherein the first decoupling loops are combined to define a first antenna pattern on the dielectric substrate.

5. The printed dipole antenna of any one of the preceding claims, wherein the reference ground comprises a reference ground plane defining a second antenna pattern on the dielectric substrate.

6. The printed dipole antenna of claim 5, wherein the reference ground plane comprises a second decoupling loop.

7. The printed dipole antenna of claim 6, wherein the reference ground plane further comprises one or more of a square-wave-shaped edge, a rectangular-wave-shaped edge and a triangular-wave-shaped edge adjacent the antenna elements.

8. The printed dipole antenna of any one of the preceding claims, wherein the dielectric substrate comprises a polymer film.

9. The printed dipole antenna of claim 8, wherein the polymer film comprises one of a polyimide film and a pyromellitic dianhydride-oxydianiline (PMDA-ODA) film.