

**CLAIMS**

What is claimed is:

1. An antenna structure, comprising:  
a coupler-antenna comprising a first antenna port to transmit electromagnetic signals, a second antenna port to receive electromagnetic signals, and a conductive element between the first antenna port and the second antenna port,  
wherein the coupler-antenna is coupled to a ground plane chassis of a communications device, and  
wherein the conductive element of the coupler-antenna is configured to achieve differential excitation to effect an approximately orthogonal modal excitation of the ground plane chassis from the first antenna port to the second antenna port.
2. The antenna structure of claim 1, wherein the coupler-antenna supports common resonant modes and differential resonant modes of the ground plane chassis.
3. The antenna structure of claim 1, wherein the coupler-antenna has multiple resonant frequencies to provide antenna operation in more than one frequency band.
4. The antenna structure of claim 1, wherein the coupler-antenna comprises a plurality of branches providing multiple resonant frequencies, wherein each branch of the plurality of branches has an electrical length that provides a resonant frequency.
5. The antenna structure of claim 4, wherein at least one of the plurality of branches comprises a tunable antenna.
6. The antenna structure of claim 4, wherein the coupler-antenna comprises a physical configuration that increases electrical length.
7. The antenna structure of claim 1, wherein the coupler-antenna is positioned at one end of the ground plane chassis.

8. The antenna structure of claim 1, wherein the coupler-antenna is formed from a conductive pattern on a substrate.
9. The antenna structure of claim 1, wherein the communications device comprises a cellular handset, a personal digital assistant, a wireless networking device, or a data card for a personal computer.
10. The antenna structure of claim 1, wherein the ground plane chassis comprises a printed circuit board.
11. An antenna structure, comprising:
  - a chassis of a communications device comprising a ground plane; and
  - an antenna having a first antenna port to transmit electromagnetic signals and a second antenna port to receive electromagnetic signals,wherein the antenna is coupled to the chassis to transmit energy between radio frequency circuitry on the chassis, and the first and second antenna ports, and wherein first resonant modes of the ground plane of the chassis relative to the first antenna port and second resonant modes of the ground plane of the chassis relative to the second antenna port increases isolation between the first antenna port and the second antenna port.
12. The antenna structure of claim 11, wherein the antenna supports common resonant modes and differential resonant modes.
13. The antenna structure of claim 11, wherein the antenna has multiple resonant frequencies to provide antenna operation in more than one frequency band.
14. The antenna structure of claim 11, wherein the antenna comprises a plurality of branches, wherein each branch has an electrical length, wherein the antenna provides multiple resonant frequencies.

15. The antenna structure of claim 14, wherein the electrical length of each of the plurality of branches is adaptable to form a tunable antenna.

16. The antenna structure of claim 11, wherein the antenna is formed from a conductive pattern on a substrate.

17. A wireless communication device, comprising:  
a chassis comprising a ground plane; and  
an antenna having a first antenna port to transmit electromagnetic signals and a second antenna port to receive electromagnetic signals,  
wherein the antenna is coupled to the chassis to transmit energy between radio frequency circuits mounted on the chassis and the first and second antenna ports, and  
wherein first resonant modes of the ground plane for the first antenna port and second resonant modes of the ground plane for the second antenna port produce a differential mode excitation that increases isolation between the first antenna port and the second antenna port.

18. The wireless communication device of claim 17, further comprising tuning circuitry, wherein the radio frequency circuits comprise a transmitter and a receiver, and wherein the tuning circuitry isolates the receiver from energy transmitted by the transmitter within a transmit band.

19. The wireless communication device of claim 17, wherein the antenna comprises a plurality of branches, each branch having an electrical length to provide multiple resonant frequencies, and wherein an electrical length of at least one of the plurality of branches comprises a tunable antenna.

20. The wireless communication device of claim 17, wherein the antenna is formed from a conductive pattern on a substrate.