

WHAT IS CLAIMED IS:

1. An antenna for placement in an opening within a first conductive material, the antenna comprising:

a dielectric tubular member;

a second conductive material forming an exterior surface of the tubular member;

the second conductive material defining a slot therein, the slot having a slot length approximately equal to one-half of a guided wavelength and having a slot width; and

a feed proximate the slot for establishing currents in the second conductive material when the antenna is in a transmitting mode, the currents perpendicular to the slot length.

2. The antenna of claim 1 wherein the guided wavelength is related to a free space wavelength of a signal transmitted or received by the antenna, a dielectric constant of a material inside the tubular member and a dielectric constant of a material outside the tubular member.

3. The antenna of claim 1 wherein a dielectric constant of the dielectric tubular member is greater than about ten.

4. The antenna of claim 1 wherein a width of the opening defined by the first conductive material is less than a quarter wavelength of the guided wavelength.

5. A communications device for sending and receiving an information signal, the communications device comprising:

an element having an opening defined therein for receiving an antenna, the element comprising first conductive material disposed proximate the opening;

transmitting and receiving circuits;

the antenna comprising:

a dielectric tubular member;

second conductive material forming an exterior surface of the tubular member;

the second conductive material defining a slot therein, a slot length approximately equal to one-half of a guided wavelength; and

a feed connected to the transmitting and receiving circuits and disposed proximate the slot for establishing currents in the second conductive material when the antenna is in a transmitting mode.

6. The device of claim 5 wherein the currents are perpendicular to the slot length.

7. The device of claim 5 wherein the slot length is substantially greater than a slot width.

8. The device of claim 5 wherein a dielectric constant of the dielectric tubular member is at least 10.

9. The device of claim 5 wherein the antenna comprises a slotted cylinder antenna.

10. The device of claim 5 wherein a width of the opening for receiving the antenna is less than a quarter wavelength at an operating frequency of the antenna.

11. The device of claim 5 wherein the second conductive material further defines a gap therein, the gap extending a length of the tubular member.

12. The device of claim 5 wherein a cross section of the tubular member comprises one of a D-shaped cross-section, a circular cross-section, a rectangular cross-section and a square cross-section.

13. The device of claim 5 wherein the feed comprises a first conductor connected to the second conductive material and a second conductor extending across a width of the slot from a first edge of the slot to a second edge of the slot and connected to the second edge.

14. The device of claim 5 wherein the element having an opening therein comprises a laptop computer screen or a laptop computer keyboard, and wherein a radiation pattern is substantially omnidirectional relative to a long axis of the slot.

15. The device of claim 5 wherein the antenna exhibits two closely spaced resonant frequencies.

16. The device of claim 5 wherein the antenna comprises at least two slots each separately excited.

17. The device of claim 5 wherein the two slots have a substantially equal resonant frequency and provide antenna diversity for the communications device.

18. The device of claim 5 wherein the slot comprises a J-shaped slot.

19. The device of claim 18 wherein the J-shaped slot comprises a short leg having a first resonant frequency and a long leg having a second resonant frequency.

20. The device of claim 5 wherein the feed comprises a microstrip probe mounted proximate the slot.