

WHAT IS CLAIMED IS

1. A communications device for receiving a propagating electromagnetic signal representing an information signal, the communications device comprising:

a first and a second radiator each comprising a plurality of structural elements;

a controller for configuring one or more of the structural elements of the first radiator to produce first operating characteristics of the first radiator, the first radiator producing a first received signal responsive to the first operating characteristics;

the controller for configuring one or more of the structural elements of the second radiator to produce second operating characteristics of the second radiator different than the first operating characteristics, the second radiator producing a second received signal responsive to the second operating characteristics; and

a signal processor responsive to at least one of the first and the second received signals for determining the information signal.

2. The communications device of claim 1 wherein the first operating characteristics and the second operating characteristics are selected to increase a signal distance between the first and the second received signals or to decrease a correlation between the first and the second received signals.

3. The communications device of claim 1 wherein the information signal comprises an analog signal or a digital signal representing data, video, voice, audio, and multimedia information.

4. The communications device of claim 1 further comprising a control signal produced by the controller responsive to a signal quality metric of at least one of the first and the second received signals, the control signal for producing the first and the second operating characteristics.

5. The communications device of claim 1 wherein the first and the second operating characteristics comprise at least one of radiation pattern, antenna impedance, antenna resonant frequency, signal polarization, antenna gain, radiation intensity, pattern directivity, bandwidth and antenna efficiency.

6. The communications device of claim 1 wherein the signal processor is responsive to either the first received signal, the second received signal or a combination of

the first and the second received signals for determining the information signal.

7. The communications device of claim 6 wherein the combination of the first and the second received signals comprises one or more of an average, a sum or a weighted sum of the first and the second received signals, and wherein the weighted sum comprises amplitude weighting, phase weighting or a combination of amplitude and phase weighting.

8. The communications device of claim 1 wherein the controller reconfigures one or both of the structural elements of the first radiator and the structural elements of the second radiator with time.

9. The system of claim 1 wherein the structural elements of the first radiator and the structural elements of the second radiator comprise a feed point, a ground point, an orientation, a separation distance and an effective electrical length.

10. The system of claim 1 wherein the first and the second radiators further comprise one or more switching elements responsive to the controller for configuring the one or more structural elements of the first and the second radiators.

11. The system of claim 1 wherein the first operating characteristics of the first radiator and the second operating characteristics of the second radiator comprise different time-based signal polarizations and radiation patterns.

12. An antenna for receiving a propagating electromagnetic signal representing an information signal, the antenna operative with an antenna controller and a signal processor, the antenna comprising:

a plurality of radiators, wherein each radiator comprises a plurality of structural elements, each radiator further comprising a resonant element responsive to the electromagnetic signal for producing a received signal;

the antenna controller for configuring one or more of the structural elements of a first radiator to produce a first received signal at a first resonant element and for configuring one or more of the structural elements of a second radiator to produce a second received signal at a second resonant element, the second received signal different from the first received signal; and

the signal processor for processing at least one of the first and the second received signals to determine the information signal.

13. The antenna of claim 12 wherein the antenna controller configures one or more of the structural elements of the first radiator to obtain first operating characteristics for the first radiator and configures one or more of the structural elements of the second radiator to obtain second operating characteristics for the second radiator, the second operating characteristics different than the first operating characteristics, and wherein the first and the second operating characteristics increase a signal distance between the first and the second received signals or reduce a correlation between the first and the second received signals.

14. The antenna of claim 13 wherein the first and the second operating characteristics comprise one or more of radiation pattern, antenna impedance, antenna resonant frequency, signal polarization, antenna gain, radiation intensity, pattern directivity, bandwidth and antenna efficiency.

15. The antenna of claim 12 wherein the information signal comprises an analog signal or a digital signal representing data, video, voice, audio, and multimedia information.

16. The antenna of claim 12 further comprising a control signal produced by the antenna controller responsive to a signal quality metric of at least one of the first and the second received signals.

17. The antenna of claim 12 wherein the signal processor is responsive to the first received signal, the second received signal or a combination of the first and the second received signals for determining the information signal.

18. The antenna of claim 12 wherein the structural elements of the first radiator and the structural elements of the second radiator comprise a feed point, a ground point, an orientation, a separation distance and an effective electrical length.

19. The antenna of claim 12 wherein the first and the second radiators further comprise one or more switching elements responsive to the antenna controller for configuring the one or more structural elements of the first and the second radiators.

20. The antenna of claim 12 wherein the first received signal and the second received signal comprise different time-based signal polarizations and radiation patterns.

21. A communications device for receiving a propagating electromagnetic signal representing an information signal, the communications device comprising:

a plurality of radiators, wherein each radiator comprises a plurality of structural elements, each radiator further comprising a resonant element responsive to the electromagnetic signal for producing a received signal;

a controller for configuring one or more of the structural elements of a first radiator to produce a first received signal at a first resonant element and for configuring one or more of the structural elements of a second radiator to produce a second received signal at a second resonant element; and

a signal processor responsive to at least one of the first and the second received signals for determining the information signal.

22. The communications device of claim 21 wherein the controller configures one or more of the structural elements of the first radiator to obtain first operating characteristics for the first radiator and configures one or more of the structural elements of the second radiator to obtain second operating characteristics for the second radiator, the first operating characteristics different from the second operating characteristics, and wherein the first and the second operating characteristics are determined to increase a signal distance between the first and the second received signals or to reduce a correlation between the first and the second received signals.

23. The communications device of claim 21 wherein the first and the second operating characteristics comprise one or more of radiation pattern, antenna impedance, antenna resonant frequency, signal polarization, antenna gain, radiation intensity, pattern directivity, bandwidth and antenna efficiency.

24. The communications device of claim 21 wherein the information signal comprises an analog signal or a digital signal representing data, video, voice, audio, and multimedia information.

25. The communications device of claim 21 further comprising a control signal produced by the controller responsive to a signal quality metric of at least one of the first and the second received signals.

26. The communications device of claim 21 wherein the signal processor is responsive to the first received signal, to the second received signal or to a combination of the first and the second received signals for determining the information signal.

27. The communications device of claim 21 wherein the structural elements of the first radiator and the structural elements of the second radiator comprise a feed point, a ground point, an orientation, a separation distance and an effective electrical length.

28. The communications device of claim 21 wherein the first and the second radiators further comprise one or more switching elements responsive to the antenna controller for configuring the one or more structural elements of the first and the second radiators.

29. The communications device of claim 21 wherein the first received signal and the second received signal comprise different time-based signal polarizations and radiation patterns.

30. An antenna operative with a feed and a ground, the antenna having first and second terminal ends, comprising:

a first switching element at the first terminal end having a first condition according to which the first terminal end is connected to the feed and a second condition according to which the first terminal end is connected to the ground;

a second switching element at the second terminal end having a first condition according to which the second terminal end is connected to the feed and a second condition according to which the second terminal is connected to the ground; and

wherein in a first operating mode the first switching element is controlled to the first condition and the second switching element is controlled to the second condition and in a second operating mode the first switching element is controlled to the second condition and the second switching element is controlled to the first condition.

31. An antenna operative with a feed, the antenna having first and second terminal ends, comprising:

a first switching element at the first terminal end having a first condition according to which the first terminal end is connected to the feed and a second condition according to which the first terminal end open;

a second switching element at the second terminal end having a first condition according to which the second terminal end is connected to the feed and a second condition according to which the second terminal is open; and

wherein in a first operating mode the first switching element is controlled to the first condition and the second switching element is controlled to the second condition and in a second operating mode the first switching element is controlled to the second condition and the second switching element is controlled to the first condition.

32. An antenna for receiving a propagating electromagnetic signal representing an information signal, the antenna operative with an antenna controller and a signal processor, the antenna comprising:

a plurality of structural elements including a resonant element responsive to the electromagnetic signal for producing a received signal;

the antenna controller for controlling one or more of the structural elements as a function of time to produce received signals that differ as a function of time; and

the signal processor for processing the received signals to determine the information signal.

33. A signal processor operative with a first and a second antenna in a communications device, the first and the second antennas each comprising a plurality of structural elements, the signal processor comprising;

a controller for configuring one or more of the structural elements of the first antenna to effect first operating characteristics of the first antenna, the first antenna producing a first received signal responsive to the first operating characteristics;

the controller for configuring one or more of the structural elements of the second antenna to effect second operating characteristics of the second antenna different from the first operating characteristics, the second antenna producing a second received signal responsive to the second operating characteristics; and

processing elements responsive to at least one of the first and the second received signals for determining the information signal.

34. The signal processor of claim 33 further comprising a combining element for combining the first and the second received signals to produce a combined signal, the processing elements responsive to the combined signal for determining the information signal.