Claims

WHAT IS CLAIMED IS:

1. A single-frequency circular polarization positioning antenna, comprising:

an inverted F antenna, wherein the inverted F antenna is provided with a first long edge, a feed end and a first ground end; a distance from the feed end to a tail end of the first long edge is shorter or longer than a distance from the first ground end to the tail end of the first long edge; and

a parasitic antenna, wherein the parasitic antenna is coupled to the tail end of the first long edge; the parasitic antenna is arranged on one side of the tail end of the first long edge; a coupling slot is formed between the tail end of the first long edge and the parasitic antenna, and the inverted F antenna and the parasitic antenna form an angle;

wherein the inverted F antenna and the parasitic antenna are configured to resonate near a working frequency point at which electrical signals on the inverted F antenna and the parasitic antenna have equal amplitudes and a phase difference of 90°;

wherein the parasitic antenna is in an inverted F shape; the parasitic antenna is provided with a second long edge, a second ground end and a third ground end; the second ground end is close to the tail end of the first long edge; a tail end of the second long edge is away from the tail end of the first long edge; and a distance from the second ground end to the tail end of the second long edge is longer than a distance from the third ground end to the tail end of the second long edge; or,

wherein the parasitic antenna is in an inverted L shape; the parasitic antenna is provided with a second long edge and a second ground end; the second ground end is close to the tail end of the first long edge; and a tail end of the second long edge is away from the tail end of the first long edge; or,

wherein the parasitic antenna is in a T shape; the parasitic antenna is provided with a second long edge and a second ground end; the second ground end is close to the tail end of the first long edge; and a tail end of the second long edge is away from the tail end of the first long edge.

2. The antenna according to claim 1, wherein equivalent lengths of the first long edge and the second long edge correspond to a working wavelength of the single-frequency circular polarization positioning antenna.

3. The antenna according to claim 1, further comprising a substrate, wherein the inverted F antenna and the parasitic antenna are vertically arranged on the substrate; the inverted F antenna and the parasitic antenna are arranged along two adjacent sides of the substrate respectively, and the parasitic antenna is arranged at a clockwise direction of the inverted F antenna.

4. The antenna according to claim 1, wherein the inverted F antenna and/or the parasitic antenna are loaded with induction devices.

5. The antenna according to claim 1, wherein the angle ranges from 75° to 105°.

6. The antenna according to claim 1, wherein a spacing of the coupling slot is adjusted to adjust a coupling degree between the inverted F antenna and the parasitic antenna.

7. A single-frequency circular polarization positioning antenna, comprising:

an inverted F antenna, wherein the inverted F antenna is provided with a first long edge, a feed end and a first ground end; a distance from the feed end to a tail end of the first long edge is shorter or longer than a distance from the first ground end to the tail end of the first long edge; and

a parasitic antenna, wherein the parasitic antenna is provided with a second long edge having a start end and a tail end; a coupling slot formed between the start end of the second long edge and the tail end of the first long edge, and the tail end of the second long edge is away from the tail end of the first long edge; the parasitic antenna is arranged on one side of the tail end of the first long edge; the inverted F antenna and the parasitic antenna form an angle;

wherein the inverted F antenna and the parasitic antenna are configured to generate electrical signals having equal amplitudes and a phase difference of 90° to generate circular polarization radiation;

wherein the parasitic antenna is an inverted L shape or a T shape; the parasitic antenna further comprises a second ground end; and a distance from the second ground end to the tail end of the second long edge is longer than or shorter than a distance from the second ground end to a start end of the second long edge.

8. The antenna according to claim 7, wherein a length of the first long edge and a length of the second long edge is adjusted to adjust a frequency offset occurring at a minimum axial ratio of the circular polarization radiation.

9. The antenna according to claim 7, wherein equivalent lengths of the first long edge and the second long edge correspond to a working wavelength of the single-frequency circular polarization positioning antenna.

10. The antenna according to any one of claims 7 to 9, further comprising a base plate, wherein the inverted F antenna and the parasitic antenna are vertically arranged on the base plate; the inverted F antenna and the parasitic antenna are arranged along two adjacent sides of the base plate respectively, and the parasitic antenna is arranged at a clockwise direction of the inverted F antenna.

11. The antenna according to claim 7, wherein the angle ranges from 75° to 105°.

12. The antenna according to claim 7, wherein a spacing of the coupling slot is adjusted to adjust a coupling degree between the inverted F antenna and the parasitic antenna.

13. A wearable device, comprising a circuit board and an antenna of claim 1, wherein a feed end of the inverted F antenna is connected to a first radio frequency port of the circuit board; and the first ground end of the inverted F antenna is connected to a ground port of the circuit board.