

CLAIMS

What is claimed is:

1. An antenna structure, comprising:
 - a conductive cover of an electronic device;
 - a first antenna element for converting between first electromagnetic signals and first electrical signals, wherein the first antenna element comprises a first portion of the conductive cover having a first opening formed therein, wherein the first antenna element is communicatively coupled to first antenna ports;
 - a second antenna element for converting between second electromagnetic signals and second electrical signals, wherein the second antenna element comprises a second portion of the conductive cover having a second opening formed therein, wherein the second antenna element is communicatively coupled to second antenna ports; and
 - a trade dress design in the conductive cover, wherein a shape of the trade dress design is defined by the first opening comprising the first antenna element and the second opening comprising the second antenna element.
2. The antenna structure of claim 1, wherein the first opening and the second opening comprise slots formed through the conductive cover.
3. The antenna structure of claim 1, further comprising a coupling element comprising a third portion of the conductive cover having a third opening formed therein, wherein the third opening connects the first opening to the second opening, wherein the coupling element causes differential currents and common mode currents flowing through the first antenna element and the second antenna element to combine in a manner that increases signal isolation between the first antenna ports of the first antenna element and the second antenna ports of the second antenna element.
4. The antenna structure of claim 3, further comprising a non-conductive material filling one of the first opening, the second opening, the third opening, or a combination thereof.

5. The antenna structure of claim 4, wherein the non-conductive material filling the third opening comprises a color scheme of a portion of the conductive cover and does not allow light to pass.
6. The antenna structure of claim 4, wherein the non-conductive material comprises a translucent material.
7. The antenna structure of claim 5, further comprising a lighting source attached inside of the conductive cover, wherein light from the lighting source is visible through one of the first opening, the second opening, the third opening, or any combination thereof.
8. The antenna structure of claim 1, wherein the trade dress design comprises one of a trademark, a likeness of a person, a rendition of an object, or any combination thereof.
9. The antenna structure of claim 1, wherein the conductive cover is one of a front cover, a back cover, or a combination thereof, for an electronic device.
10. The antenna structure of claim 1, wherein the electronic device transmits the first electromagnetic signals via the first antenna element and receives the second electromagnetic signals via the second antenna element.

11. A communication device, comprising:
 - a conductive cover;
 - an antenna structure comprising a first portion of the conductive cover having a first slot formed therein, wherein the first portion forms a first antenna element for converting between first electromagnetic signals and first electrical signals, and wherein the first slot defines a shape of a trade dress design in the conductive cover; and
 - a circuit communicatively coupled to first antenna ports of the first antenna element, wherein the circuit performs operations comprising:
 - transmitting the first electronic signals into the first antenna element; and
 - receiving second electronic signals from the first antenna element.
12. The communication device of claim 11, wherein the antenna structure further comprises a second portion of the conductive cover having a second slot formed therein, wherein the second portion forms a second antenna element for converting between second electromagnetic signals and second electrical signals, and wherein the second slot further defines the shape of the trade dress design in the conductive cover, and wherein the circuit is further communicatively coupled to second antenna ports of the second antenna element.
13. The communication device of claim 12, wherein the antenna structure further comprises a coupling slot in the conductive cover, wherein the coupling slot connects the first slot to the second slot, and wherein the coupling slot causes differential currents and common mode currents flowing through the first antenna element and the second antenna element to combine in a manner that increases signal isolation between the first antenna ports of the first antenna element and the second antenna ports of the second antenna element.
14. The communication device of claim 13, wherein the coupling slot further defines the shape of the trade dress design in the conductive cover.

15. The communication device of claim 13, further comprising a non-conductive material filling one of the first slot, the second slot, the coupling slot, or a combination thereof.

16. The communication device of claim 12, wherein the circuit further receives the second electromagnetic signals via the second antenna element.

17. A method, comprising:

transmitting or receiving, by a device comprising a processor, first electronic signals to a first slot antenna element, wherein the first electronic signals generate first electromagnetic signals via the first slot antenna element and wherein the first slot antenna comprises a first portion of a conductive cover of the device having a first opening formed therein; and

receiving or transmitting, by the device, second electrical signals from a second slot antenna element, wherein the second electrical signals are generated via second electromagnetic signals received by the second slot antenna element, wherein the second slot antenna comprises a second portion of the conductive cover having a second opening formed therein, and wherein a shape of a trade dress design in the conductive cover is defined by one of the first opening, the second opening, or a combination thereof.

18. The method of claim 17, wherein the device further comprises a third portion of the conductive cover having a coupling opening formed therein, wherein the coupling opening connects from the first opening to the second opening, wherein the coupling opening causes differential currents and common mode currents flowing through the first slot antenna element and the second slot antenna element to combine in a manner that increases signal isolation between a first port of the first slot antenna element and a second port of the slot second antenna element.

19. The method of claim 17, further comprising:
receiving third electronic signals from the first slot antenna element; and
transmitting fourth electronic signals to the second slot antenna element.

20. The method of claim 17, wherein the trade dress design comprises one of a
trademark, a likeness of a person, a rendition of an object, or any combination thereof.