

## DETAILED ACTION

### *Allowable Subject Matter*

1. The following is a statement of reasons for the indication of allowable subject matter:  
Claims 1 and 28 are allowable over the art of record because the prior art does not teach one or more connecting elements electrically connecting the antenna elements at a location on each antenna element that is spaced apart from an antenna port coupled thereto to form a single radiating structure and such that electrical currents on one antenna element flow to a connected neighboring antenna element and generally bypass the antenna port coupled to the neighboring antenna element, the electrical currents flowing through the one antenna element and the neighboring antenna element being generally equal in magnitude, such that an antenna mode excited by one antenna port is generally electrically isolated from a mode excited by another antenna port at a given desired signal frequency range and the antenna structure generates diverse antenna patterns.
2. Claim 29 is allowable over the art of record because the prior art does not teach at least three antenna elements, each operatively coupled to a different one of the antenna ports, the antenna elements being positioned in a spaced-apart arrangement about the periphery of an enclosure containing the antenna structure; and one or more connecting elements electrically connecting each antenna element to a neighboring antenna element such that electrical currents on one antenna element flow to connected neighboring antenna elements and generally bypass the antenna ports coupled to the neighboring antenna elements, the electrical currents flowing through the one antenna element and the neighboring antenna elements being generally equal in

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magnitude, such that an antenna mode excited by one antenna port is generally electrically isolated from a mode excited by another antenna port at a given desired signal frequency range and the antenna elements generate diverse antenna patterns.

3. Claim 30 is allowable over the art of record because the prior art does not teach a plurality of antenna elements, each operatively coupled to a different one of the antenna ports, wherein the antenna elements each include split fingers of unequal length to provide multiple resonant frequencies; and one or more connecting elements electrically connecting the antenna elements such that electrical currents on one antenna element flow to a connected neighboring antenna element and generally bypass the antenna port coupled to the neighboring antenna element, the electrical currents flowing through the one antenna element and the neighboring antenna element being generally equal in magnitude, such that an antenna mode excited by one antenna port is generally electrically isolated from a mode excited by another antenna port at a given desired signal frequency range and the antenna structure generates diverse antenna patterns.

4. Claim 31 is allowable over the art of record because the prior art does not teach a plurality of antenna elements, each operatively coupled to a different one of the antenna ports, wherein the antenna elements are adjustable in length to form a tunable antenna; and one or more connecting elements electrically connecting the antenna elements such that electrical currents on one antenna element flow to a connected neighboring antenna element and generally bypass the antenna port coupled to the neighboring antenna element, the electrical currents flowing through the one antenna element and the neighboring antenna element being generally equal in magnitude, such that an antenna mode excited by one antenna port is generally electrically

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isolated from a mode excited by another antenna port at a given desired signal frequency range and the antenna structure generates diverse antenna patterns.

5. Claim 33 is allowable over the art of record because the prior art does not teach one or more connecting elements electrically connecting the antenna elements such that electrical currents on one antenna element flow to a connected neighboring antenna element and generally bypass the antenna port coupled to the neighboring antenna element, the electrical currents flowing through the one antenna element and the neighboring antenna element being generally equal in magnitude, such that an antenna mode excited by one antenna port is generally electrically isolated from a mode excited by another antenna port at a given desired signal frequency range and the antenna structure generates diverse antenna patterns, wherein the one or more connecting elements comprise a plurality of connecting elements spaced along the lengths of the antenna elements, each of said connecting elements including a switch selectable to open circuit a connection between the connecting element and the antenna elements to provide a desired isolation bandwidth for the antenna structure.

6. Claim 34 is allowable over the art of record because the prior art does not teach one or more connecting elements electrically connecting the antenna elements such that electrical currents on one antenna element flow to a connected neighboring antenna element and generally bypass the antenna port coupled to the neighboring antenna element, the electrical currents flowing through the one antenna element and the neighboring antenna element being generally equal in magnitude, such that an antenna mode excited by one antenna port is generally electrically isolated from a mode excited by another antenna port at a given desired signal frequency range and the antenna structure generates diverse antenna patterns, wherein each of

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the one or more connecting elements includes a filter such that the connecting element provides a connection between antenna elements that is only effective within a given frequency band associated with the filter.

7. Claim 36 is allowable over the art of record because the prior art does not teach one or more connecting elements electrically connecting the antenna elements such that electrical currents on one antenna element flow to a connected neighboring antenna element and generally bypass the antenna port coupled to the neighboring antenna element, the electrical currents flowing through the one antenna element and the neighboring antenna element being generally equal in magnitude, such that an antenna mode excited by one antenna port is generally electrically isolated from a mode excited by another antenna port at a given desired signal frequency range and the antenna structure generates diverse antenna patterns, wherein each of the one or more connecting elements includes a tunable element to alter the delay, phase, or impedance of the electrical connection between the antenna elements.

8. Claim 37 is allowable over the art of record because the prior art does not teach one or more connecting elements electrically connecting the antenna elements such that electrical currents on one antenna element flow to a connected neighboring antenna element and generally bypass the antenna port coupled to the neighboring antenna element, the electrical currents flowing through the one antenna element and the neighboring antenna element being generally equal in magnitude, such that an antenna mode excited by one antenna port is generally electrically isolated from a mode excited by another antenna port at a given desired signal frequency range and the antenna structure generates diverse antenna patterns; and a sleeve for

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containing the plurality of antenna elements, wherein the one or more connecting elements comprises a conductive band in the sleeve that connects neighboring antenna elements.

9. Claim 39 is allowable over the art of record because the prior art does not teach one or more connecting elements electrically connecting the antenna elements such that electrical currents on one antenna element flow to a connected neighboring antenna element and generally bypass the antenna port coupled to the neighboring antenna element, the electrical currents flowing through the one antenna element and the neighboring antenna element being generally equal in magnitude, such that an antenna mode excited by one antenna port is generally electrically isolated from a mode excited by another antenna port at a given desired signal frequency range and the antenna structure generates diverse antenna patterns; and a plurality of amplifiers, each for amplifying transmit signals applied to one of said antenna ports.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho G. Phan whose telephone number is 571-272-1826. The examiner can normally be reached on M-F, 6:30-3:00.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197  
(toll-free).

/Tho G Phan/  
Primary Examiner, Art Unit 2821