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Planar Complementary Antenna And Related Antenna Array

Communications & Information

Consumer Electronics

Digital Broadcasting, Telecommunication and Optoelectronics

Smart Mobility and Electric Vehicle

Opportunity

The telecom industry tends to use simple antenna technologies like the dipole antenna and the inverted-F antenna. However, these antennas feature narrow bandwidth and low gain. With the arrival of 5G technology, traditional antennas can no longer provide the performance that is necessary. Some recent research has developed the quasi-Yagi antenna and the Vivaldi antenna in response to new developments, but these antennas are large in size and feature higher costs.

The invention described here offers a smaller size, wide bandwidth, strong electrical performance, low fabrication costs, and a simple structure, making it ideal for widespread adoption by different players in the telecommunications industry.

IP Status
Patent granted

Technology Readiness Level (TRL) ? 4

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Technology

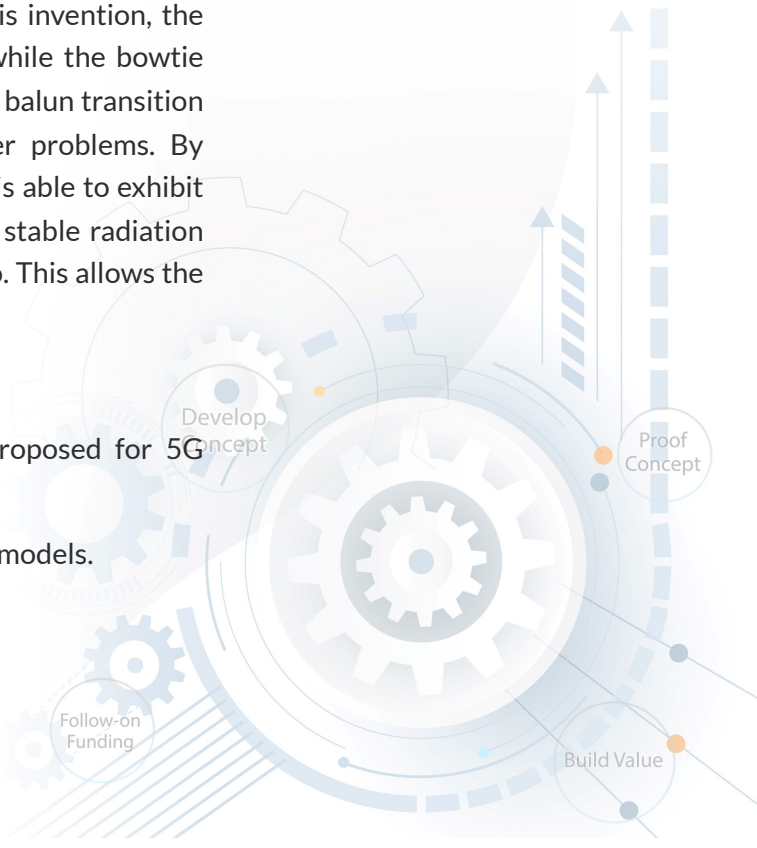
This invention is a modified version of the complementary antenna, which is composed of a dipole antenna and a bowtie antenna. In this invention, the dipole antenna is replaced with a planar dipole antenna, while the bowtie antenna is replaced by a single loop antenna. A parallel-strip balun transition is also used, as it addresses issues with electrical feeder problems. By adopting the complementary antenna model, the invention is able to exhibit excellent electrical properties such as a wide bandwidth, a stable radiation gain, stable radiation patterns, and a high front-to-back ratio. This allows the antenna to cope with the higher demands placed on it by 5G.

Advantages

- This invention is smaller than other antenna models proposed for 5G technology.
- This invention has lower fabrication costs than competing models.
- This invention has a simple structure for easy adaptation.
- This invention has a wide bandwidth.

Applications

- 5G telecom industry.
- Wideband millimeter wave antenna array.



- Other wireless communication systems.