High-Selectivity Electromagnetic Bandgap Device and Antenna System

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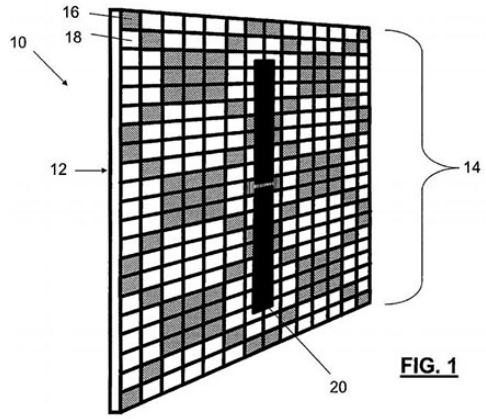

FIG. 1

EBG Device w/ Antenna

Technology Summary

The present invention is an antenna system possessing generally narrow bandwidths such that adjacent signals will be screened out, providing radio system selectivity. Antennas possess a wide bandwidth, but when combined with an electromagnetic bandgap (EBG) of lesser bandwidth, the net effect will be that of the EBG alone. If the operating frequency with which the antenna is being driven leaves the band defined by -90 and 90 degree operation, the in-phase reflection property is lost and perfect electrical conductor (PEC) behavior returns, short-circuiting the antenna and quenching antenna operation. The out-of-band gain quenching characteristics of this narrowband EBG negate antenna gain off of resonance thereby creating an antenna system with an overall narrow bandwidth. An EBG tuning mechanism is also employed to provide frequency agility and adjustment to the antenna system.

Application & Market Utility

Enhanced system selectivity through improved narrowband response. EBG optimization for narrow bandwidths. Increased radio frequency agility. Adjustable, and suitable for low frequency applications.

Next Steps

Seeking research collaboration and licensing opportunities.

TECHNOLOGY READINESS LEVEL 1-3

Seeking

Investment | Licensing | Research

Keywords

- Tunable Antenna Systems
- electromagnetic bandgap
- perfect electrical conductor

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