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Integrated Antennas And Phased Arrays With Mode-Free Electromagnetic Bandgap Materials

Tech ID: 28787 / UC Case 2017-204-0

BRIEF DESCRIPTION

The invention is a multifunctional electromagnetic structure that enhances antennas performance significantly. Built using an electromagnetic bandgap material, it eliminates scan blindness for phased array structures, along all scan directions. The invention simultaneously improves the radiation pattern as well.

FULL DESCRIPTION

A multifunctional electromagnetic structure is presented. It is a true electromagnetic bandgap (EBG) material, with both surface and leaky waves suppressed from the whole structure along all lateral directions, and an antenna element, radiating to the broadside direction, simultaneously. The structure has two metallization layers of sliced concentric rings between square shaped radiating top metal layer and bottom ground plane. The lower rings are connected to the ground plane through vias and the patch of the top layer is fed with a probe. The EBG cells are used as antenna elements in a phased array environment where they eliminate scan blindness from the array structure along all scan directions.

SUGGESTED USES

• Antennas • Wireless communication systems • Radars • Industrial Scanning/Inspection • Microwave systems

ADVANTAGES

• Multifunctional electromagnetic structure which can be used as an electromagnetic bandgap material or as an antenna element, with no need for changing the material or geometry profile • Has mode-free electromagnetic bandgap property • Eliminates scan blindness completely from microstrip antennas along all scan directions • Provides better radiation characteristics

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,374,274	08/06/2019	2017-204

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OTHER INFORMATION

CATEGORIZED AS

- » **Communications**
- » Networking
- » Other
- » Wireless

RELATED CASES

2017-204-0

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