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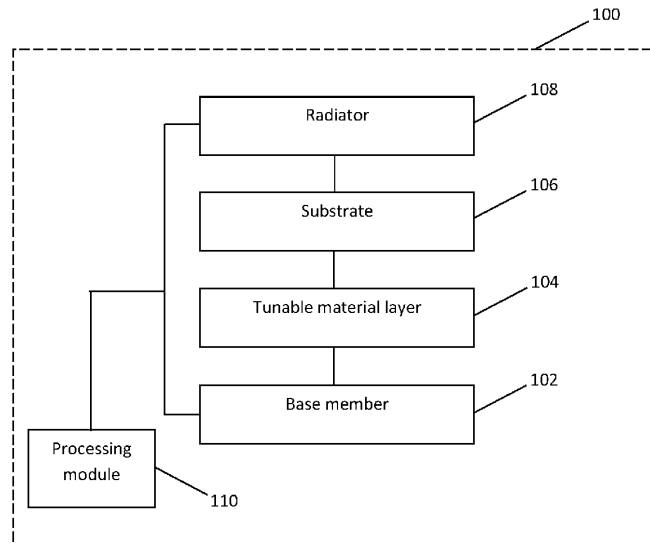


FIG. 1

(57) Abstract: There is provided an antenna system and a method of forming an antenna system, the antenna system comprising, a base member having a cavity defined on a surface thereof; a tunable material layer disposed within the cavity of the base member; a substantially planar substrate coupled to the base member such that a first side of the substrate is in contact with the tunable material layer; and a radiator coupled to a second side of the substrate such that the substrate is between the radiator and the base member, said radiator comprising an array of grid cells configured to generate a beam upon excitation thereof; wherein the tunable material layer comprises a tunable material capable of changing its dielectric constant in response to a variable biasing voltage applied between the radiator and the base member, such that one or more properties of the beam changes according to the dielectric constant of the tunable material.

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