

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
28 September 2023 (28.09.2023)



(10) International Publication Number
WO 2023/182934 A2

- (51) **International Patent Classification:**
Not classified
- (21) **International Application Number:**
PCT/SG2023/050176
- (22) **International Filing Date:**
17 March 2023 (17.03.2023)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
10202203072S 24 March 2022 (24.03.2022) SG
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- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA,

(54) **Title:** AN ANTENNA SYSTEM AND A METHOD OF FORMING AN ANTENNA SYSTEM

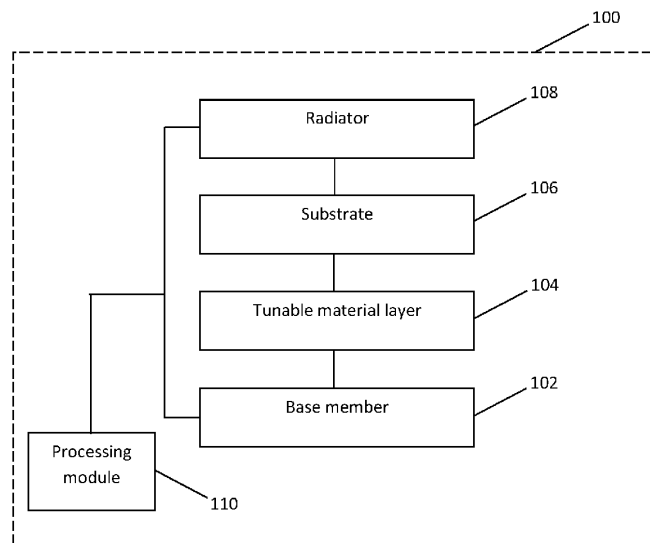


FIG. 1

(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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NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO,
RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS,
ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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