

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
06 October 2022 (06.10.2022)



(10) International Publication Number
WO 2022/211725 A1

(51) International Patent Classification:

H01Q 21/06 (2006.01) *G01S 13/06* (2006.01)
H01Q 21/24 (2006.01) *H01Q 23/00* (2006.01)

(21) International Application Number:

PCT/SG2022/050132

(22) International Filing Date:

15 March 2022 (15.03.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10202103224P 30 March 2021 (30.03.2021) SG

(71) Applicant: **AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH** [SG/SG]; 1 Fusionopolis Way, #20-10 Connexis North Tower, Singapore 138632 (SG).

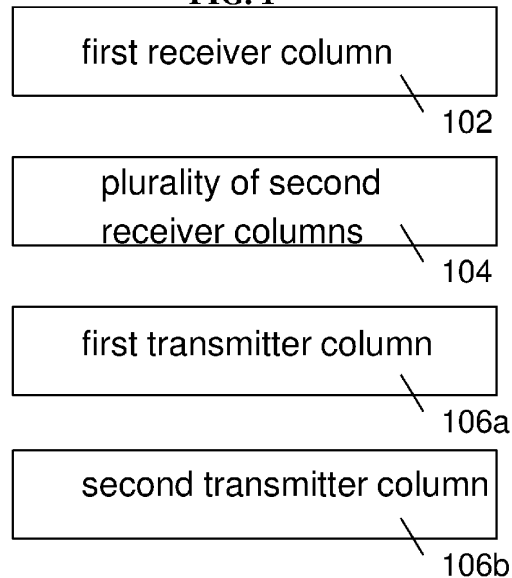
(72) Inventors: **MA, Yugang**; c/o PKM, Institute for Infocomm Research, 1 Fusionopolis Way, Connexis South Tower, #21-01, Singapore 138632 (SG). **ZENG, Yonghong**; c/o PKM, Institute for Infocomm Research, 1 Fusionopolis Way, Connexis South Tower, #21-01, Singapore 138632 (SG).

(74) Agent: **VIERING, JENTSCHURA & PARTNER LLP**; P.O. Box 1088, Rochor Post Office, Rochor Road, Singapore 911833 (SG).

(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, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI,

(54) Title: ANTENNA ARRAY, ARRAY ARRANGEMENT AND METHODS OF FORMING THE SAME

FIG. 1



(57) Abstract: Various embodiments may relate to an antenna array. The antenna array may include a first receiver column. The antenna array may also include a plurality of second receiver columns. The antenna array may also include a first transmitter column and a second transmitter column arranged between the first receiver column and the plurality of second receiver columns. A spacing between the first transmitter column and the second transmitter column may be about half a spacing between neighbouring second receiver columns of the plurality of second receiver columns. A distance between the first receiver column and a second receiver column of the plurality of second receiver columns nearest to the first receiver column may be about N times the spacing between the neighbouring second receiver columns of the plurality of second receiver columns, N being a number of second receiver columns.

[Continued on next page]



WO 2022/211725 A1

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, GH, GM, KE, LR, LS, MW, MZ, NA, RW, 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, 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).

Published:

- with international search report (Art. 21(3))
- in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE