



(51) International Patent Classification:
H04B 7/185 (2006.01) H01Q 3/26 (2006.01)
H04B 7/04 (2006.01)

(21) International Application Number:
PCT/US2010/044621

(22) International Filing Date:
5 August 2010 (05.08.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/272,001 6 August 2009 (06.08.2009) US
61/213,999 6 August 2009 (06.08.2009) US
12/830,324 4 July 2010 (04.07.2010) US
12/830,326 4 July 2010 (04.07.2010) US
12/830,327 4 July 2010 (04.07.2010) US
12/830,329 4 July 2010 (04.07.2010) US
12/830,328 4 July 2010 (04.07.2010) US

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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, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

[Continued on next page]

(54) Title: SYSTEM AND METHODS FOR WIRELESS BROADBAND DELIVERY OF DATA

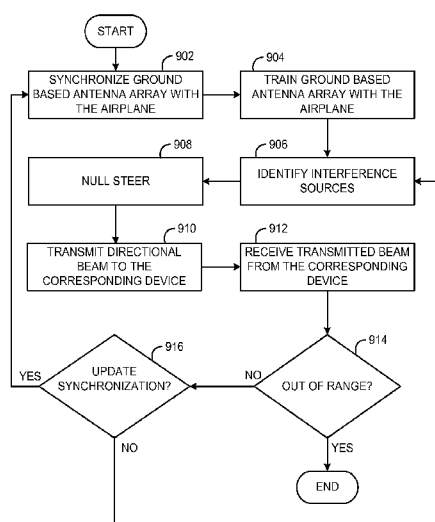


FIG. 9

(57) Abstract: A system and method for wireless data delivery is provided. The communication may be between the antenna arrays of an airborne platform (such as aircraft) and a surface base station. The antenna arrays may generate a plurality of directional synchronization beams directed in at a plurality of corresponding spatial directions. Other antenna arrays receive the directional synchronization beam and respond in kind, providing the original antenna array a way to determine directionality of the other antenna arrays. The antenna arrays may then receive a training beam. The training beam includes known data, such as a Fourier Matrix, which may then be utilized to generate weights. Weights may then be utilized to modify either of the phase or amplitude of a base signal which is then sent to each of the elements of the antenna array in order to achieve directionality of the signal propagation. Thus, a directional beam may be formed which is oriented toward the source of the training beam, which may be a base station or the like. It may also be desirable to identify sources of interference. Interference sources are all non-desired sources of radiation within the target frequency range. Lastly, the system may steer one or more nulls in order to substantially attenuate the sources of interference.



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) **Date of publication of the international search report:**
9 June 2011