

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
23 November 2006 (23.11.2006)

PCT

(10) International Publication Number
WO 2006/124951 A3

(51) International Patent Classification:
H04L 1/02 (2006.01)

(21) International Application Number:

PCT/US2006/019008

(22) International Filing Date: 16 May 2006 (16.05.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/681,869 17 May 2005 (17.05.2005) US

11/240,252 30 September 2005 (30.09.2005) US

(71) Applicant (for all designated States except US): **INTER-DIGITAL TECHNOLOGY CORPORATION** [US/US];
3411 Silverside Road, Concord Plaza, Suite 105, Hagley Building, Wilmington, Delaware 19810 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **SHAN, TieJun** [US/US]; 3060 Thompson Road, Upper Salford, Pennsylvania 18969 (US).

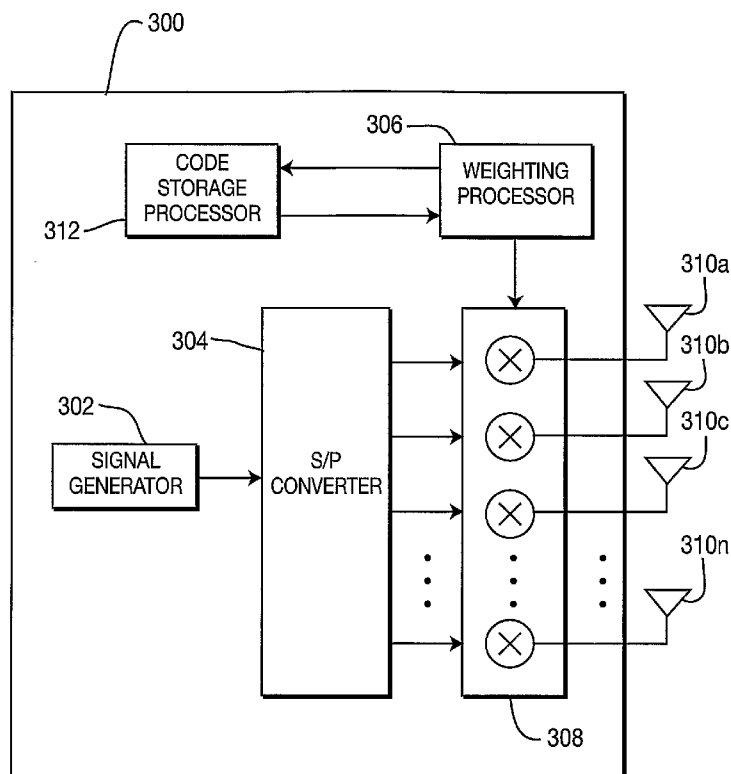
(74) Agent: **DONCH, John, C., Jr.**; Volpe and Koenig, P.C.,
United Plaza, Suite 1600, 30 South 17th Street, Philadelphia, Pennsylvania 19103 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR POWER CONTROL IN A MULTIPLE ANTENNA SYSTEM



(57) Abstract: A method and apparatus for use in a CDMA-type or OFDM/OFDMA-based multi-antenna system first selects an initial set of antenna weights and multiplies the selected antenna weights by copies of a transmission signal to produce a weighted transmission signal. In an OFDM/OFDMA-based implementation, a selected set of sub-carriers are modulated with the signal copies and then weighted using the antenna weights. The weighted transmission signal is transmitted using an initial overall transmission power. If an acknowledgement is not received within a predetermined time interval, the antenna weights are adjusted and/or the sub-carriers are reselected and a modified weighted transmission signal is transmitted. The overall transmission power is maintained at a fixed value as the antenna weights and/or selected sub-carriers are adjusted and is increased only if an acknowledgment is not received after a predetermined number of weight adjustments and/or sub-carrier re-selections.



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:

6 December 2007