

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
17 July 2008 (17.07.2008)

PCT

(10) International Publication Number
WO 2008/086110 A3

(51) International Patent Classification:
H04L 27/26 (2006.01)

Morehouse Drive, San Diego, California 92121-1714 (US).

(21) International Application Number:
PCT/US2008/050136

(74) Agents: **BACHAND, Richard A.** et al.; International IP Administration, 5775 Morehouse Drive, San Diego, California 92121-1714 (US).

(22) International Filing Date: 3 January 2008 (03.01.2008)

(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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/883,756 5 January 2007 (05.01.2007) US
11/691,243 26 March 2007 (26.03.2007) US

(71) Applicant (for all designated States except US): **QUALCOMM INCORPORATED** [US/US]; International IP Administration, 5775 Morehouse Drive, San Diego, California 92121-1714 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BUDIANU, Petru Cristian** [RO/US]; 5775 Morehouse Drive, San Diego, California 92121-1714 (US). **GORE, Dhananjay Ashok** [IN/US]; 5775 Morehouse Drive, San Diego, California 92121-1714 (US). **GOROKHOV, Alexei** [FR/US]; 5775

(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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, 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: PILOT DESIGN FOR IMPROVED CHANNEL AND INTERFERENCE ESTIMATION

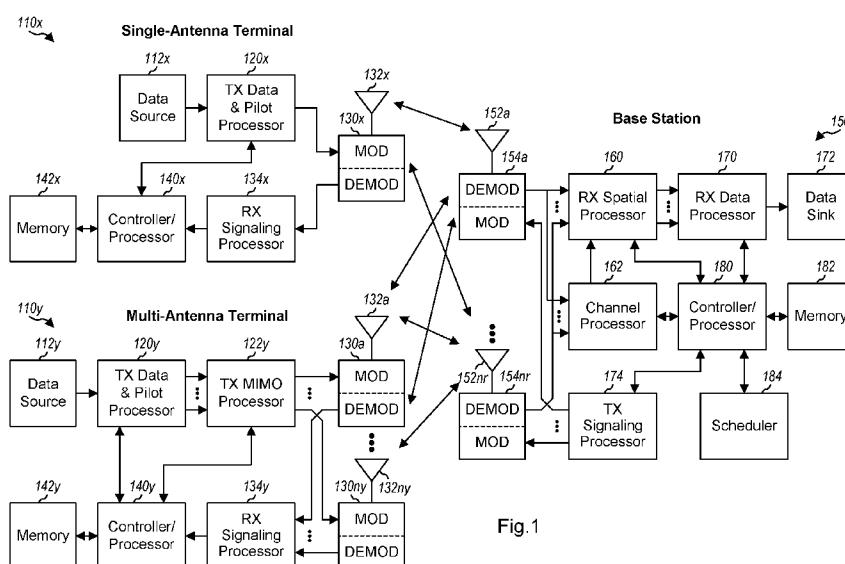


Fig. 1

(57) Abstract: Techniques for transmitting pilot and for processing received pilot to obtain channel and interference estimates are described. A terminal may generate pilot symbols for a first cluster in a time frequency block based on a first sequence and may generate pilot symbols for a second cluster in the time frequency block based on a second sequence. The first and second sequences may include common elements arranged in different orders and may be considered as different versions of a single sequence. The terminal may transmit the pilot symbols in their respective clusters. A base station may obtain received pilot symbols from multiple clusters in the time frequency block. The base station may form each of multiple basis vectors with multiple versions of the sequence assigned to the terminal and may process the received pilot symbols with the multiple basis vectors to obtain a channel estimate for the terminal.



Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

Published:

- *with international search report*

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

25 September 2008