

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
2 October 2008 (02.10.2008)

PCT

(10) International Publication Number
WO 2008/118985 A1

(51) International Patent Classification:
H04B 1/707 (2006.01) **H04L 27/00** (2006.01)

(21) International Application Number:
PCT/US2008/058311

(22) International Filing Date: 26 March 2008 (26.03.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/908,180 26 March 2007 (26.03.2007) US
12/055,087 25 March 2008 (25.03.2008) US

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

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BUTLER, Brian K.** [US/US]; 5775 Morehouse Drive, San Diego, California 92121 (US). **LUO, Tao** [CA/US]; 5775 Morehouse Drive, San Diego, California 92111 (US).

(74) Agent: **PATEL, Milan I.**; Attn: International Ip Administration, 5775 Morehouse Drive, San Diego, California 92121 (US).

(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, SV, SY, 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, 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).

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))

[Continued on next page]

(54) Title: IMPROVED FREQUENCY OFFSET ESTIMATOR

1100 →

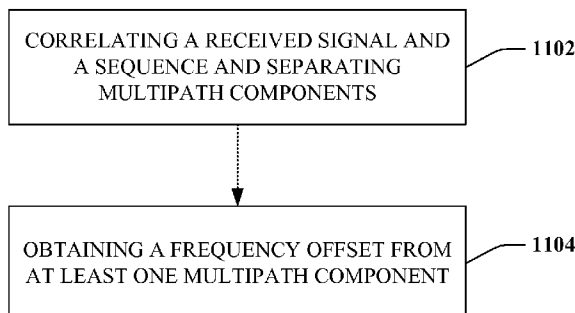


FIG. 11

(57) Abstract: Determining a frequency offset of a received signal utilizing two or more multipath components of the received signal is provided herein. By way of example, the received signal can be correlated with a synchronization sequence in a time domain or a frequency domain, resulting in separation of the two or more multipath components of the received signal. Analysis of at least one of the multipath components can provide a frequency offset of the received signal. Furthermore, by analyzing the multipath components, estimation of the frequency offset can be improved as compared with single-signal analysis techniques.

WO 2008/118985 A1



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*