

(51) International Patent Classification:
H04L 7/00 (2006.01)(21) International Application Number:
PCT/US2011/049405(22) International Filing Date:
26 August 2011 (26.08.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
12/869,521 26 August 2010 (26.08.2010) US(71) Applicant (for all designated States except US): **QUALCOMM Atheros, Inc.** [US/US]; 1700 Technology Drive, San Jose, California 95110 (US).

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

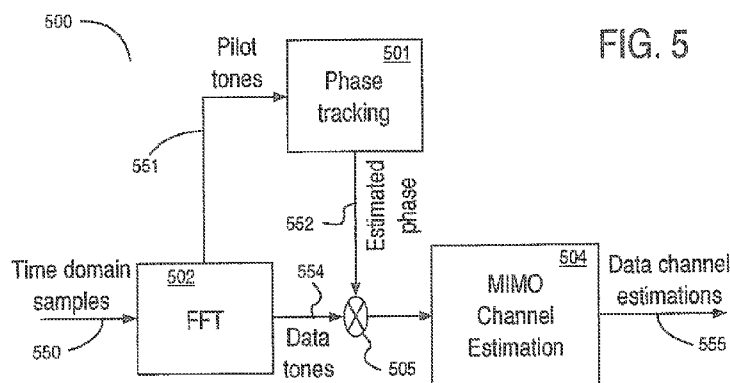
AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, 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, RS, 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))
- 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))

(54) Title: SINGLE STREAM PHASE TRACKING DURING CHANNEL ESTIMATION IN A VERY HIGH THROUGHPUT WIRELESS MIMO COMMUNICATION SYSTEM



PHASE TRACKING AND CORRECTION BLOCK DIAGRAM

(57) **Abstract:** In a multiple-input, multiple-output system, the wireless node's receive chain demodulation function is enhanced to include phase tracking. Instead of performing phase tracking during the data symbols which is cumbersome for very high throughput wireless networks, the VHT Long Training Fields (LTFs) embedded in the preamble of a frame are used for phase tracking. Single stream pilot tones are added during the transmission of VHT- LTFs. This is exploited on the receive side to be able to estimate the channel using the pilot tones in the first set of the Long Training Fields. Second set of the Long Training Fields are then used to estimate the phase of the pilot tones using the estimated channel. The phase estimation so obtained is continuously applied to other received data tones throughout the VHT-LTFs of the data symbols. The phase errors due to PLL mismatches and phase noise are reduced at reception, leading to better signal to noise ratio for different levels of parts per million drift and offset in frequency. Further, MIMO channel estimation is more accurate, which improves the overall wireless network when this accurate MIMO channel estimation data participates in calibration and handshake between wireless nodes.