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<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top; border: none; padding: 5px;"> (21) International Application Number: PCT/US99/20341 (22) International Filing Date: 2 September 1999 (02.09.99) (30) Priority Data: 09/149,428 8 September 1998 (08.09.98) US (71) Applicant: QUALCOMM INCORPORATED [US/US]; 5775 Morehouse Drive, San Diego, CA 92121-1714 (US). (72) Inventors: SOLIMAN, Samir, S.; 11412 Cypress Canyon Park Drive, San Diego, CA 92131 (US). GLAZKO, Serguei, A.; 9538 Hito Court, San Diego, CA 92129 (US). AGASHE, Parag, A.; 10173 Camino Ruiz #94, San Diego, CA 92126 (US). (74) Agent: GREENHAUS, Bruce, W.; Qualcomm Incorporated, 5775 Morehouse Drive, San Diego, CA 92121-1714 (US). </td> <td style="width: 50%; vertical-align: top; border: none; padding: 5px;"> (81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> </td> </tr> </table>			(21) International Application Number: PCT/US99/20341 (22) International Filing Date: 2 September 1999 (02.09.99) (30) Priority Data: 09/149,428 8 September 1998 (08.09.98) US (71) Applicant: QUALCOMM INCORPORATED [US/US]; 5775 Morehouse Drive, San Diego, CA 92121-1714 (US). (72) Inventors: SOLIMAN, Samir, S.; 11412 Cypress Canyon Park Drive, San Diego, CA 92131 (US). GLAZKO, Serguei, A.; 9538 Hito Court, San Diego, CA 92129 (US). AGASHE, Parag, A.; 10173 Camino Ruiz #94, San Diego, CA 92126 (US). (74) Agent: GREENHAUS, Bruce, W.; Qualcomm Incorporated, 5775 Morehouse Drive, San Diego, CA 92121-1714 (US).	(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
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(54) Title: METHOD AND APPARATUS FOR INCREASING THE SENSITIVITY OF A GLOBAL POSITIONING SATELLITE RECEIVER				
(57) Abstract Method and apparatus providing enhanced sensitivity for GPS receivers (400, 500, 600, 700) by allowing coherent integration of a correlation over several code periods of a GPS signal in one embodiment, and by performing a time to frequency domain conversion to the output from a correlation processor (507) in a second embodiment. In the case in which coherent integration is performed over several code periods, advantage is taken of the fact that CDMA cellular telephone base stations transmit information that allows the receiver to determine GPS time before beginning a GPS signal acquisition process. The integration can be expanded to include code periods from more than one bit period, if the GPS receiver (400, 500, 600, 700) takes advantage of the fact that known bit patterns are transmitted at particular times within the transmission from a GPS satellite. If no base station is within range, then the output from a correlator (507) that integrates a correlation over one code period is used to generate values that are input to a discrete time domain to frequency domain transform processor (511). The output from the transform processor (511) will indicate the presence of a signal from a particular satellite and the offset between locally generated signal and the received GPS signal.				

