



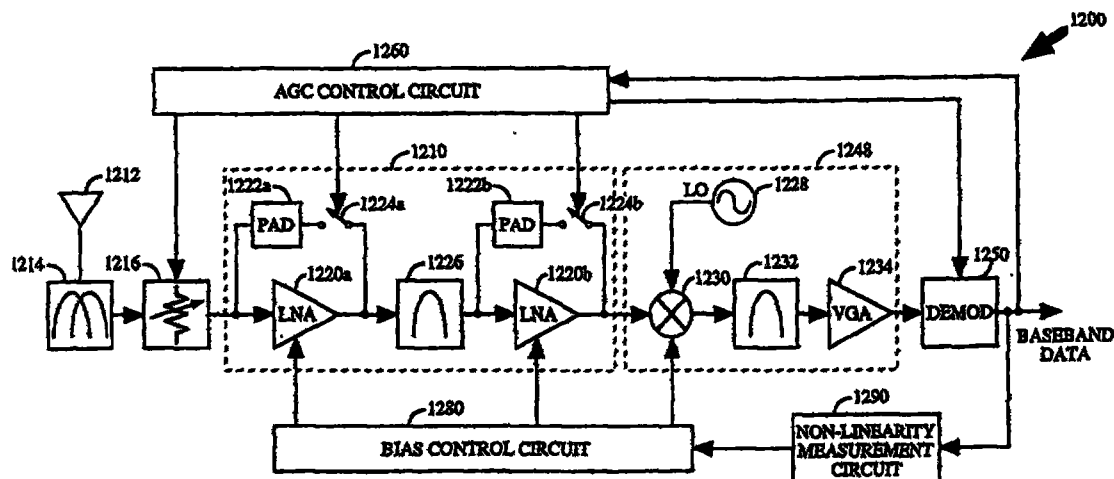
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International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H04B 1/10, H03G 3/20	A1	(11) International Publication Number: WO 99/30426 (43) International Publication Date: 17 June 1999 (17.06.99)
(21) International Application Number: PCT/US98/26052 (22) International Filing Date: 8 December 1998 (08.12.98) (30) Priority Data: 08/987,305 9 December 1997 (09.12.97) US (71) Applicant: QUALCOMM INCORPORATED [US/US]; 6455 Lusk Boulevard, San Diego, CA 92121 (US). (72) Inventors: CICCARELLI, Steven, C.; 714 Summersong Lane, San Diego, CA 92024 (US). YOUNIS, Saed, G.; 12767 Jordan Ridge Court, San Diego, CA 92130 (US). KAUFMAN, Ralph, E.; 9307 Laser Lane, La Mesa, CA 91941 (US). (74) Agents: OGROD, Gregory, D. et al.; Qualcomm Incorporated, 6455 Lusk Boulevard, San Diego, CA 92121 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, 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, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, 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 With international search report.

(54) Title: PROGRAMMABLE LINEAR RECEIVER



(57) Abstract

A programmable linear receiver (1200) which provides the requisite level of system performance at reduced power consumption. The receiver minimizes power consumption based on measurement of the non-linearity in the output signal from the receiver (1200). The amount of non-linearity can be measured by the RSSI slope or energy-per-chip-to-noise-ratio (E_c/I_o) measurement. The RSSI slope is the ratio of the change in the output signal plus intermodulation to the change in the input signal. The input signal level is periodically increased by a predetermined level and the output signal from the receiver (1200) is measured. The output signal comprises the desired signal and intermodulation products from non-linearity within the receiver (1200). When the receiver (1200) is operating linearly, the output signal level increases dB per dB with the input signal level. However, as the receiver (1200) transitions into non-linear region, intermodulation products due to non-linearity increase faster than the desired signal. By detecting the RSSI slope, the amount of degradation due to non-linearity can be determined. This information is then used to adjust the IIP3 operating point of the amplifiers (1234) and mixer (1230) to provide the requisite level of performance while minimizing power consumption.