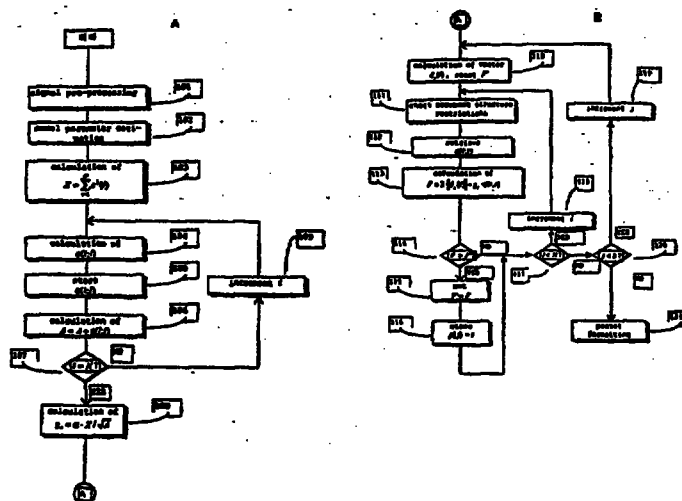


INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : G10L 9/14		A1	(11) International Publication Number: WO 99/41737
			(43) International Publication Date: 19 August 1999 (19.08.99)
(21) International Application Number: PCT/RU98/00041 (22) International Filing Date: 17 February 1998 (17.02.98) (71) Applicant (for all designated States except US): MOTOROLA INC. [US/US]; 1301 E. Algonquin Road, Schaumburg, IL 60196 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): ROZHDESTVENSKIJ, Juri [RU/RU]; Rjazansky pr., 87-2-57, Moscow (RU). DIACHENKO, Juri [RU/RU]; Sovetskaja St. 16a-6, Voskresensk, Mosc. Reg., 140200 (RU). (74) Agents: RYBAKOV, Vladimir M. et al.; Agency of Patent Attorneys "Ars-Patent", Shvedsky per., 2-331, P.O. Box 230, St.Petersburg, 191186 (RU).		(81) Designated States: JP, KR, SG, US, Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>	

(54) Title: METHOD AND APPARATUS FOR HIGH SPEED DETERMINATION OF AN OPTIMUM VECTOR IN A FIXED CODEBOOK



(57) Abstract

A method for a CELP algorithm including the steps of pre-processing (101) a sampled speech $s\{n\}$ in a signal pre-processor so as to output at least a noise filtered speech output vector and a channel noise estimate, model parameter estimation (102) of the noise filtered speech output vector so as to output a prediction residual and a long term prediction gain, encoding (104 - 120) the prediction residual so as to output an adaptive codebook vector including an index of impulse response functions of a filter and a vector gain, formatting (121) the encoded speech packets, is proposed wherein the step of encoding (104 - 120) comprises in the following order the steps of determination (104 - 109) of the gain by choosing a start value close to a theoretical optimal value, and vector optimisation (110 - 120) by successive searching for an extremum of an estimate function based on a recursively corrected correlation vector. Further, a digital signal processor for processing electrical signals to determine a codebook vector and a gain of said codebook vector is provided that operates correspondingly to the method according to the invention.