

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 November 2002 (21.11.2002)

PCT

(10) International Publication Number
WO 02/093774 A1

(51) International Patent Classification⁷: **H04B 3/23**,
H04M 9/08

3, Singapore 680285 (SG). **ALVAREZ-TINOCO, Antonio, Mario** [GB/SG]; 32 Toh Tuck Road #03-01, Singapore 596710 (SG).

(21) International Application Number: PCT/SG01/00093

(74) Agent: **DONALDSON & BURKINSHAW**; P.O. Box 3667, Singapore 905667 (SG).

(22) International Filing Date: 17 May 2001 (17.05.2001)

(25) Filing Language: English

(81) Designated States (*national*): JP, SG, US.

(26) Publication Language: English

(84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).

(71) Applicant (*for all designated States except US*): **STMICROELECTRONICS ASIA PACIFIC PTE LTD** [SG/SG]; 28 Ang Mo Kio Industrial Park 2, Singapore 569508 (SG).

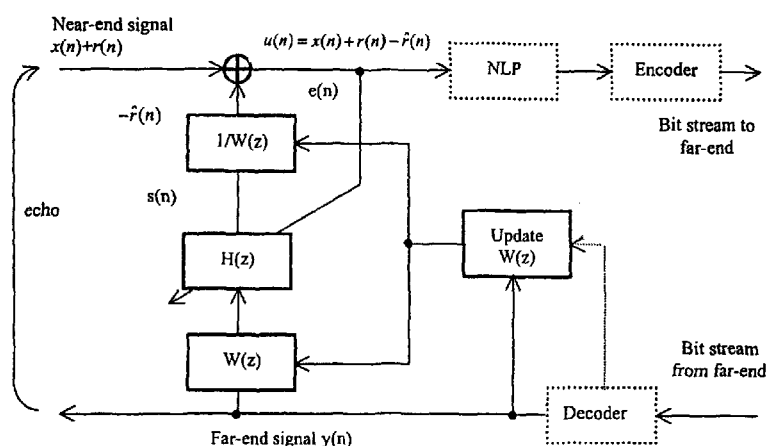
Published:
— with international search report

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **TIAN, Wen, Shun** [CN/SG]; Block 285, #09-296, Choa Chu Kang Avenue

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ECHO CANCELLER AND A METHOD OF CANCELLING ECHO



General structure of proposed echo canceller

(57) **Abstract:** In a communications system having incoming communications signals and outgoing communications signals the outgoing communications signals may undesirably include an echo signal derived from the incoming communications signals. Accordingly, echo cancellation techniques may be applied in the communications system, including generating weighting filter coefficients based on linear predictive coding coefficients calculated from a block comprising a plurality of sequential samples of the incoming communications signals. The incoming communications signals are filtered through a weighting filter utilising the weighting filter coefficients to produce a weighted incoming communications signals. Estimated echo signals are generated by filtering the incoming communications signals through an adaptive transversal filter, the adaptive transversal filter using adaptive filter coefficients. Then, the estimated echo signals can be subtracted from the outgoing communications signals to produce error signals. Advantageously, the adaptive filter coefficients are determined for each sample in said block on the basis of the weighted incoming communications signals and the error signals.



WO 02/093774 A1