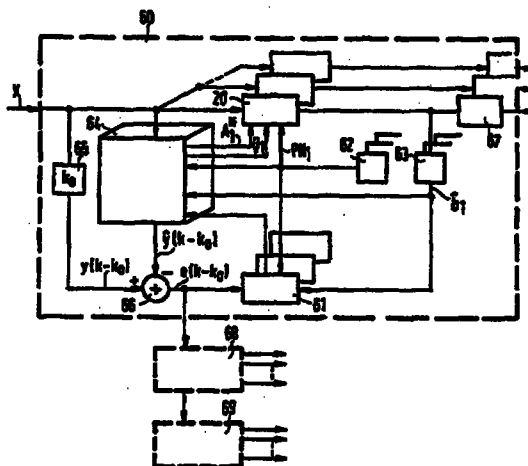




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(71) Applicant (for all designated States except US): PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).		RTMP's copy A2+A3	
(71) Applicant (for SE only): PHILIPS NORDEN AB [SE/SE]; Kottbygatan 5, Kista, S-164 85 Stockholm (SE).			
(71) Applicant (for DE only): PHILIPS PATENTVERWALTUNG GMBH [DE/DE]; Wendenstrasse 35c, D-20097 Hamburg (DE).			
(72) Inventors; and (75) Inventors/Applicants (for US only): THIELECKE, Jörn [DE/DE]; Taublingstrasse 39, D-8520 Erlangen (DE). GRANZOW, Wolfgang [DE/DE]; Labenwolfstrasse 7, D-8500 Nürnberg 10 (DE).			

(54) Title: **A MULTIPLE ACCESS DIGITAL TRANSMISSION SYSTEM AND A RADIO BASE STATION AND A RECEIVER FOR USE IN SUCH A SYSTEM**



(57) Abstract

In CDMA systems (1) with time-variant multipath transmission channels, such as mobile radio systems, receivers are used that apply multipath diversity techniques so as to counteract fading. In a known CDMA system, L-tap RAKE receivers (20) are used of which taps are adjusted on the basis of channel estimation means (61) that estimates multipath delays ($\tau_{11}, \dots, \tau_{1L}; \tau_{N1}, \dots, \tau_{NL}$) from the received signal (y), i.e. searchers are arranged for finding paths. In such a system inter-user and inter-path interference is not taken into account. As a result, it is difficult to detect yet unresolved paths. Especially, it is difficult or even impossible to detect weak users in a strong user environment. A CDMA system (1) is proposed comprising channel estimation means (64) having a channel model for estimating (9) the received signal (y). An interference reduced signal (e) is formed from the received signal (y) and the estimated received signal (9) and is applied to the searchers. In an embodiment the channel model is an adaptive linear combiner (70 ... 80) combining re-spread decision feedback signals (b) weighted by estimated complex amplitudes (A) of resolved paths. Because in the interference reduced signal strong users are no longer present, it is easier to find yet unresolved paths. From the interference reduced signal (e) weak users can be easily detected, thus increasing system capacity.

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