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(54) **Receiver synchronisation with timing and frequency error correction**

(57) A receiver is synchronised to a signal by studying which among the previously calculated responses to known synchronisation errors corresponds to the response of a real, received signal. A sample sequence decimated from an oversampled signal is compared to model sequences which correspond to decimation at a different distance from the optimum decimation point, and in further processing the employed decimation point is used according to how far from optimum the best correlated model sequence is situated. From the phase angles of the samples, there is calculated an average phase angle change per symbol, and on the basis of that and the known symbol rate, the frequency error in the reception is determined. For each sample of the data burst, there is calculated an individual phase correction by multiplying the individually defined average phase shift per symbol by the distance from a given symbol corresponding to a phase reference value, and by adding the result to said phase reference value. Bursts are received in groups, and timing and frequency errors are predicted on the basis of the trends indicated by preceding groups in order to receive the next group. A unit formed of several groups is used for measuring and predicting the change in the doppler frequency.

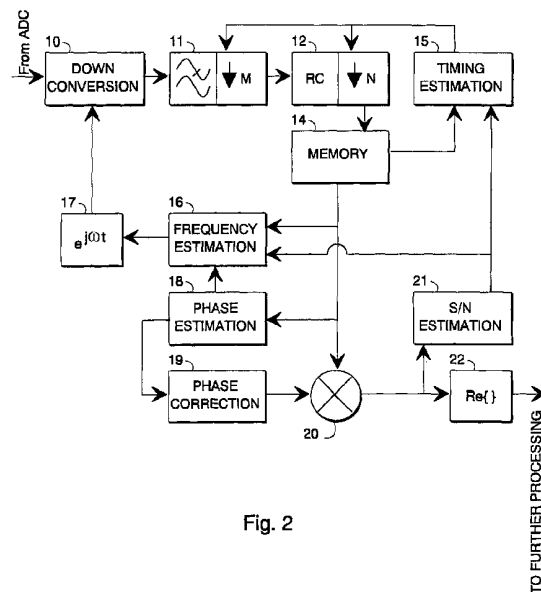


Fig. 2



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EUROPEAN SEARCH REPORT

Application Number
EP 97 66 0056

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A	* column 2, line 27 - line 38 *	2-11	
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A	AGHAMOHAMMADI A ET AL: "A NEW METHOD FOR PHASE SYNCHRONIZATION AND AUTOMATIC GAIN CONTROL OF LINEARLY MODULATED SIGNALS ON FREQUENCY-FLAT FADING CHANNELS" IEEE TRANSACTIONS ON COMMUNICATIONS, IEEE INC. NEW YORK, US, vol. 39, no. 1, 1991, pages 25-29, XP000220443 ISSN: 0090-6778 * figure 4 *	4-11	
	* page 25, column 2, section III A - page 26, column 1, section III B *		
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 12 July 2002	Examiner Baltersee, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03 82 (F04C01)



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EUROPEAN SEARCH REPORT

Application Number
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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
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The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 12 July 2002	Examiner Baltersee, J
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503.03.02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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12-07-2002

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