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[Continued on next page]

(54) Title: INDIVIDUAL CHANNEL PHASE DELAY SCHEME

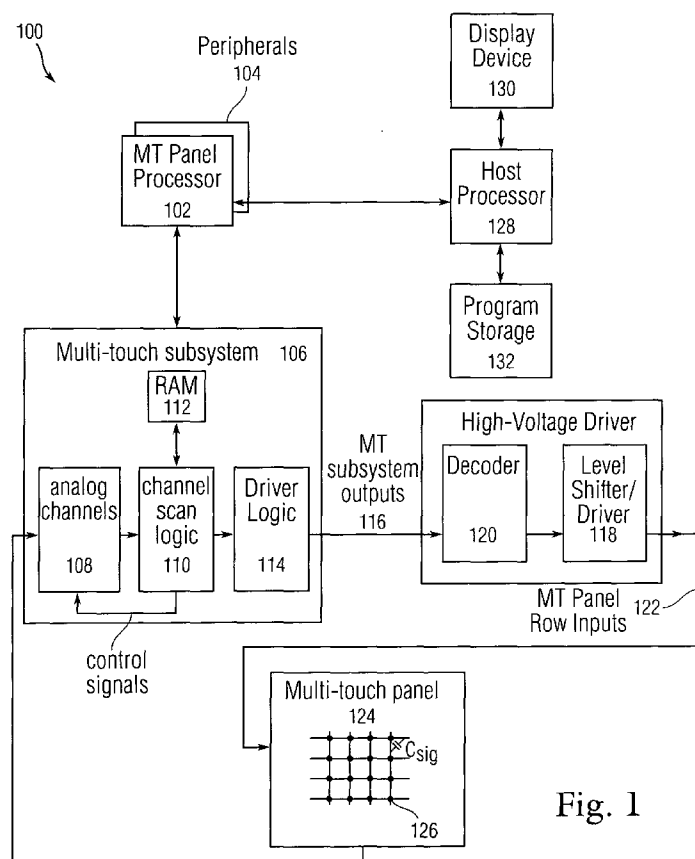


Fig. 1

(57) Abstract: Embodiments of the present invention are directed to processing an incoming signal by using a demodulation signal, while controlling the phase of the demodulation signal in relation to the incoming signal. The incoming signal can be processed by being mixed with the modulation signal at a mixer. The mixing may thus cause various beneficial modifications of the incoming signal, such as noise suppression of the incoming signal, rectification of the incoming signal, demodulation of the incoming signal, etc.



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## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 920 309 A (BISSET STEPHEN J [US] ET AL) 6 July 1999 (1999-07-06) column 3, line 9 - column 7, line 42 figures 1,2	1-52
A	US 2005/104867 A1 (WESTERMAN WAYNE [US] ET AL) 19 May 2005 (2005-05-19) pages 115-124 figures 2-10	1,12,27, 34,47-50
A	EP 0 786 745 A (HARRIS CORP [US]) 30 July 1997 (1997-07-30) column 7, line 16 - column 9, line 9 figures 11-18	1,12,27, 34,47-50

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5920309	A	06-07-1999	NONE	
US 2005104867	A1	19-05-2005	NONE	
EP 0786745	A	30-07-1997	AT 281677 T	15-11-2004
			DE 69731415 D1	09-12-2004
			DE 69731415 T2	03-11-2005
			JP 9231346 A	05-09-1997
			US 5956415 A	21-09-1999
			US 5862248 A	19-01-1999