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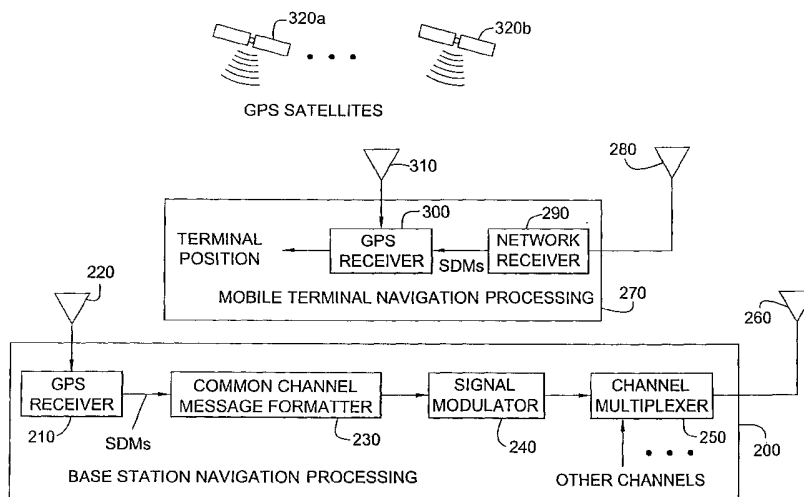
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[Continued on next page]

(54) Title: HYBRID SYSTEM FOR POSITION DETERMINATION BY A MOBILE COMMUNICATIONS TERMINAL



(57) Abstract: A mobile unit includes a network receiver, such as a GSM telephone, for communication with a wireless network, and a navigation receiver, such as a global positioning system (GPS) receiver for receiving navigation signals. The navigation receiver includes a vector delay lock loop (VDLL) that receives information concerning the navigation sources, such as satellite data messages, transmitted over a common broadcast channel of the wireless network, and receives navigation signals from the navigation receiver. The VDLL uses the navigation signals received from navigation sources that are not obscured and uses satellite data messages broadcast over the wireless network to track a navigation signal that is received only intermittently due, for example, to the navigation source being obscured from view of the mobile unit.



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

*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.*

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## INTERNATIONAL SEARCH REPORT

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**A. CLASSIFICATION OF SUBJECT MATTER**  
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According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01S

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, INSPEC

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 365 450 A (SCHUCHMAN LEONARD ET AL) 15 November 1994 (1994-11-15)	1,2,5, . 12,28
Y	column 4, line 8 - line 46  column 7, line 5 - line 27; claim 11 ---	3,4,6,7, 16,22
Y	US 5 398 034 A (SPILKER JR JAMES J) 14 March 1995 (1995-03-14) cited in the application the whole document ---	3,16,22
Y	WO 99 66342 A (ERICSSON INC) 23 December 1999 (1999-12-23) page 8, line 16 -page 9, line 4 ---	4,6
Y	WO 00 34800 A (ERICSSON INC) 15 June 2000 (2000-06-15) abstract ---	7
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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- \*Z\* document member of the same patent family

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PARKINSON B W ET AL: "GLOBAL POSITIONING SYSTEM: THEORY AND APPLICATIONS" , GLOBAL POSITIONING SYSTEM: THEORY AND APPLICATIONS, PROGRESS IN ASTRONAUTICS AND AERONAUTICS VOL. 163, WASHINGTON, DC: AIAA, US, VOL. VOL. II, PAGE(S) 292-301 XP002210531 ISBN: 1-56347-107-8 figures 33,34	1,16,28
A	WO 99 63358 A (SMALL DAVID ;COMMUNICATIONS PTY LTD Q (AU)) 9 December 1999 (1999-12-09) abstract; figure 4 page 12, line 28 - line 35 page 15, line 24 - line 34	1,16,28

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Information on patent family members

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