



US007027773B1

(12) **United States Patent**
McMillin

(10) **Patent No.:** **US 7,027,773 B1**
(45) **Date of Patent:** **Apr. 11, 2006**

(54) **ON/OFF KEYING NODE-TO-NODE
MESSAGING TRANSCIVER NETWORK
WITH DYNAMIC ROUTING AND
CONFIGURING**

(75) Inventor: **Brian K. McMillin**, Dallas, TX (US)

(73) Assignee: **AFX Technology Group International,
Inc.**, Dallas, TX (US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/578,237**

(22) Filed: **May 24, 2000**

Related U.S. Application Data

(60) Provisional application No. 60/136,539, filed on May 28,
1999.

(51) **Int. Cl.**
H04B 5/00 (2006.01)

(52) **U.S. Cl.** **455/41.2; 455/445; 455/518;
370/390; 375/200.57**

(58) **Field of Classification Search** 455/41.2,
455/445, 518, 432.1, 432.2, 433, 40, 41.1,
455/47.2, 503, 500, 517; 370/390, 315, 349,
370/397; 375/200.57; 395/200.51, 200.73
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,705,523 A	12/1972	Alouisa	179/18 EA
4,284,848 A	8/1981	Frost	
4,494,119 A	1/1985	Wimbush	343/457
4,651,156 A	3/1987	Martinez	342/457
4,799,062 A	1/1989	Sanderford, Jr. et al.	342/450
4,818,998 A	4/1989	Apsell et al.	342/44
5,021,794 A	6/1991	Lawrence	342/457
5,086,389 A	2/1992	Hassett et al.	364/401
5,202,829 A	4/1993	Geier	364/449
5,223,844 A	6/1993	Mansell et al.	342/357

5,289,183 A	2/1994	Hassett et al.	340/905
5,351,187 A	9/1994	Hassett	364/401
5,365,451 A	11/1994	Wang et al.	364/449
5,373,503 A	12/1994	Chen	
5,448,569 A	9/1995	Huang et al.	370/95.1
5,473,602 A	12/1995	McKenna et al.	
5,485,163 A	1/1996	Singer et al.	342/457
5,485,520 A	1/1996	Chaum et al.	380/24
5,488,360 A	1/1996	Ray	340/933
5,490,079 A	2/1996	Sharpe et al.	364/467
5,493,692 A	2/1996	Goldstein et al.	
5,525,992 A	6/1996	Froschermeier	342/42
5,550,551 A	8/1996	Alesio	342/457

(Continued)

FOREIGN PATENT DOCUMENTS

EP	0687075 A2	12/1995
EP	0913965 A1	5/1999
WO	WO 98/42096	9/1998

OTHER PUBLICATIONS

Jubin, J., et al., "The DARPA Packet Radio Network Pro-
tocols," Proceedings of the IEEE, Jan. 1987, pp. 21-32, vol.
75, No. 1.

Basagni, S., et al., "Geographic Messaging in Wireless Ad
Hoc Networks," IEEE, May 16, 1999, pp. 1957-1961.

ASH Transceiver Designer's Guide, published by RFM,
Mar. 10, 1999, pp. 1-53.

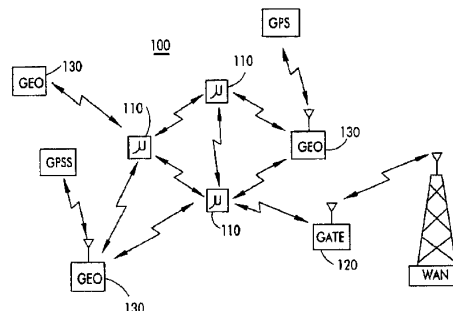
Primary Examiner—Tilahun Gesesse

(74) *Attorney, Agent, or Firm*—Senniger Powers

(57) **ABSTRACT**

The invention is a system operating on a reference fre-
quency. The system comprises a plurality of at least three
nodes. Each node hands off a message received from another
node to a subsequent node. Each of the nodes comprises a
transceiver receiving a message on the reference frequency
from another node and transmitting the received message on
the reference frequency to a subsequent node, and a con-
troller controlling operation of the transceiver to receive the
message transmitted by another node and to transmit
the received message to a subsequent node.

33 Claims, 25 Drawing Sheets



US 7,027,773 B1

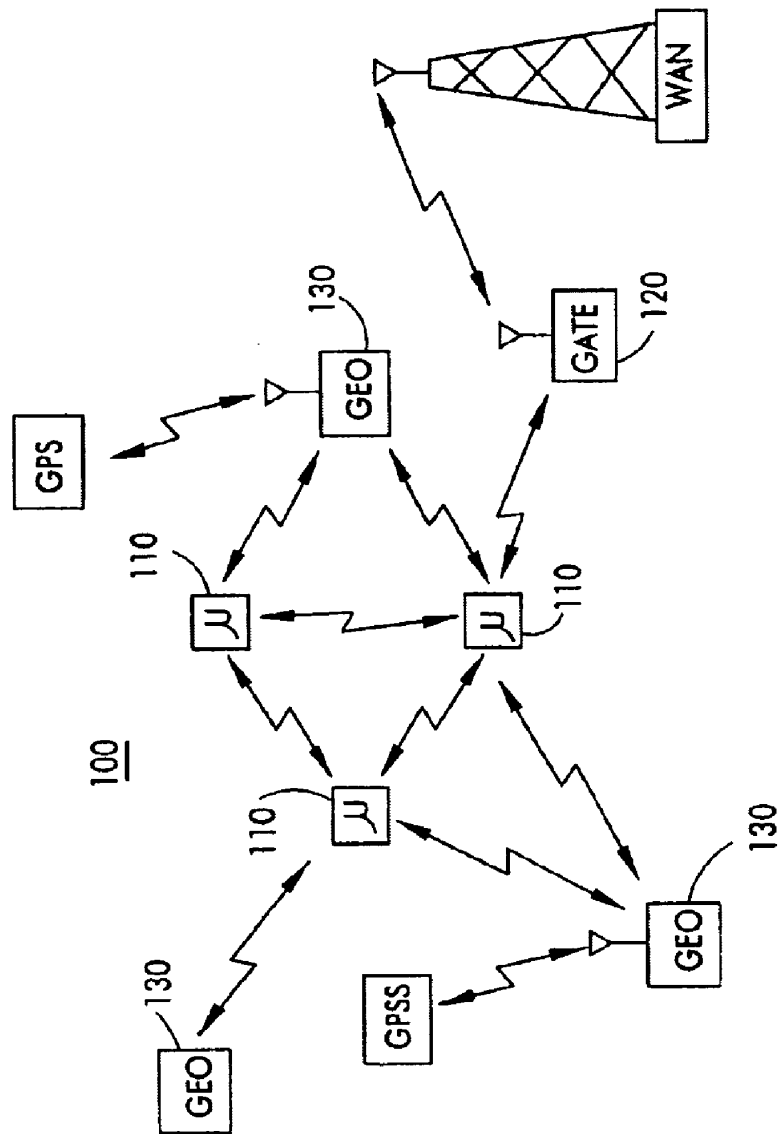
Page 2

U.S. PATENT DOCUMENTS

5,572,221 A	11/1996	Marlevi et al.	342/452	5,805,082 A	9/1998	Hassett	340/928
5,631,642 A	5/1997	Brockelsby et al.	340/993	5,818,619 A	10/1998	Medved et al.	359/172
5,640,384 A	6/1997	Du	370/221	5,822,309 A *	10/1998	Ayanoglu et al.	370/315
5,640,390 A	6/1997	Sakamoto et al.	370/346	5,835,061 A	11/1998	Stewart	342/457
5,675,344 A	10/1997	Tong et al.	342/457	5,835,857 A	11/1998	Otten	455/410
5,682,139 A	10/1997	Pradeep et al.	340/539	5,838,237 A	11/1998	Revell et al.	340/573
5,686,902 A	11/1997	Reis et al.	340/825.54	5,841,352 A	11/1998	Prakash	340/573
5,706,014 A	1/1998	Abbasi	342/357	5,844,522 A	12/1998	Sheffer et al.	342/457
5,731,757 A	3/1998	Layson, Jr.	340/573	5,852,401 A	12/1998	Kita	340/539
5,731,785 A	3/1998	Lemelson et al.	342/357	5,875,179 A	2/1999	Tikalsky	370/315
5,734,963 A	3/1998	Fitzgerald et al.	455/31.2	5,875,186 A	2/1999	Belanger et al.	370/331
5,742,233 A	4/1998	Hoffman et al.	340/573	5,974,236 A *	10/1999	Sherman	709/221
5,748,147 A	5/1998	Bickley et al.	342/457	5,987,011 A *	11/1999	Toh	370/331
5,758,285 A	5/1998	Chavez, Jr. et al.		6,028,857 A	2/2000	Poor	370/351
5,767,804 A	6/1998	Murphy	342/357	6,046,978 A	4/2000	Melnik	370/221
5,787,117 A	7/1998	Ash	375/223	6,104,712 A	8/2000	Robert et al.	370/389
5,787,174 A	7/1998	Tuttle	380/23	6,338,087 B1 *	1/2002	Okanoue	709/222
5,787,344 A	7/1998	Scheinert	455/422	6,414,955 B1 *	7/2002	Clare et al.	370/390

* cited by examiner

FIG. 1



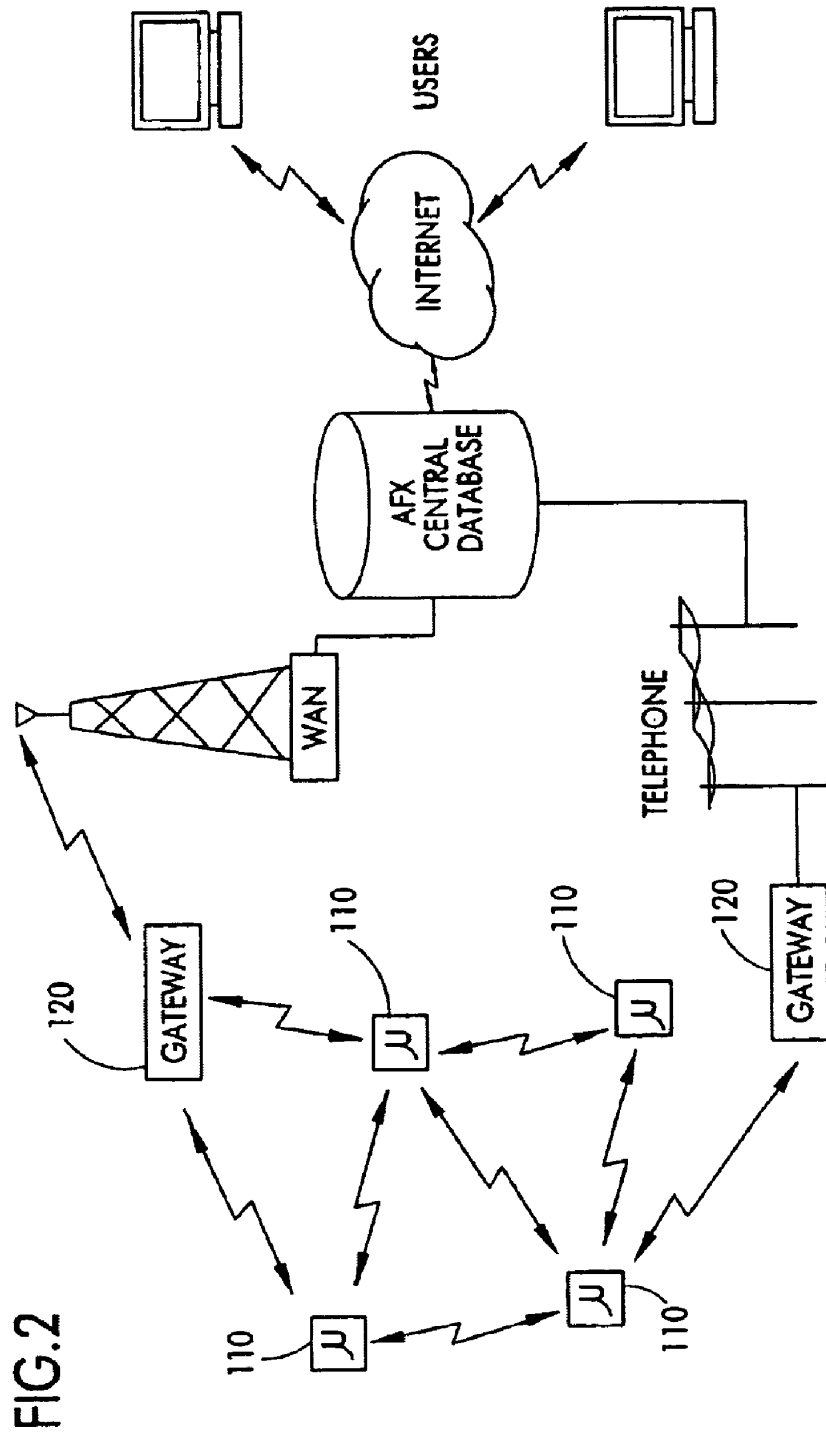


FIG.3

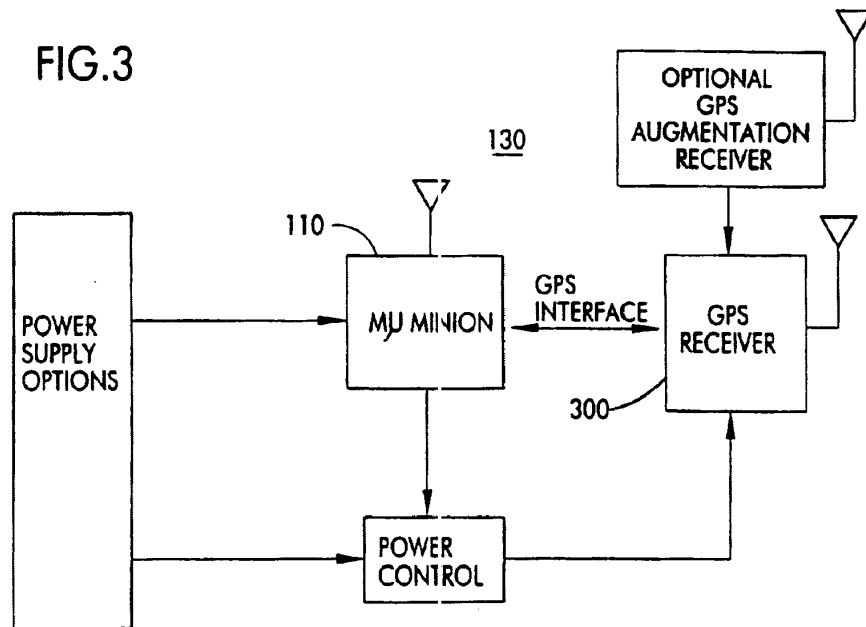
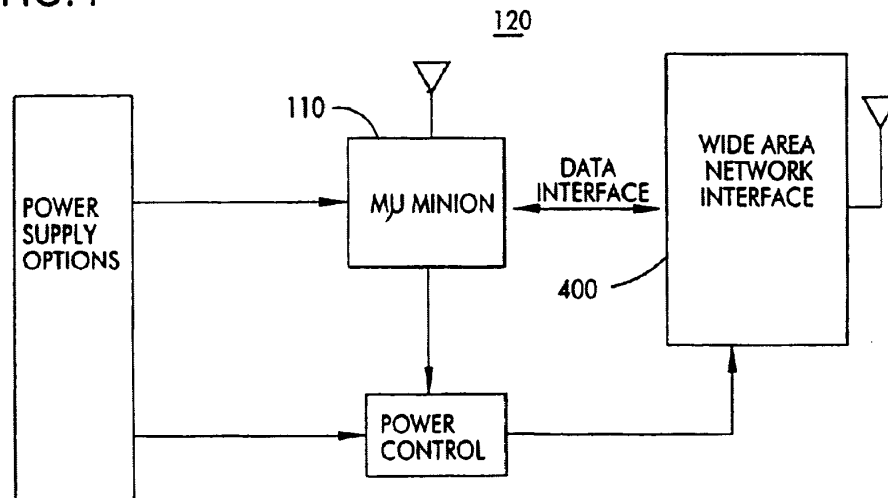


FIG.4



Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.