

United States Patent [19]

Dykes et al.

[54] MODEM FOR TIGHT COUPLING BETWEEN A COMPUTER AND A CELLULAR TELEPHONE

- [75] Inventors: Don A. Dykes, Houston; Robin T. Castell, Spring; Andrew C. Clark, Houston; Paul E. Nagel, The Woodlands; Huyen B. Tran, Houston; Randall L. Jones, Plano; Ronald L. Baldridge, Carrollton, all of Tex.
- [73] Assignee: Compaq Computer Corporation, Houston, Tex.
- [21] Appl. No.: 973,625

DOCKE

- [22] Filed: Nov. 9, 1992
- [51] Int. Cl.⁶ H04M 11/00

[56] References Cited

U.S. PATENT DOCUMENTS

Re. 34,034	8/1992	O'Sullivan 379/59
4,012,596	3/1977	West, Jr. et al 179/41 A
4,568,800	2/1986	Orikasa 179/2 EB
4,658,096	4/1987	West, Jr. et al 379/59
4,680,787	7/1987	Marry 379/63
4,697,281	9/1987	O'Sullivan 379/59
4,718,080	1/1988	Serrano et al 379/59
4,737,975	4/1988	Shafer 379/58
4,752,949	6/1988	Steinbeck et al 379/61
4,759,059	7/1988	Christensen 379/161
4,775,997	10/1988	West, Jr. et al 379/58
4,837,800	6/1989	Freeburg et al 379/59
4,837,812	6/1989	Takahashi et al 379/98
4,852,146	7/1989	Hathcock et al 379/58
4,868,863	9/1989	Hartley et al
4,887,290	12/1989	Dop et al 379/33
4,890,315	12/1989	Bendixen et al 379/59
4,912,756	3/1990	Нор 379/60
4,972,457	11/1990	O'Sullivan 379/59
4,980,910	12/1990	Oba et al 379/354
4,991,197	2/1991	Morris 379/58
5,127,041	6/1992	O'Sullivan 379/63
5,131,019	7/1992	Sheffer et al 379/39

[11] Patent Number: 5,428,671

[45] Date of Patent: Jun. 27, 1995

5,134,648	7/1992	Hochfield et al	379/98
5,249,218	9/1993	Sainton	379/93

FOREIGN PATENT DOCUMENTS

459279	5/1991	European Pat. Off	379/58
504007	9/1992	European Pat. Off	
WO92/10047	6/1992	Finland	379/58
2170977	8/1986	United Kingdom	379/59
WO8905553	6/1989	WIPO	379/58
WO91/07044	5/1991	WIPO	379/58

OTHER PUBLICATIONS

Installation and User Instructions for *THE Portable Cellular Connection TM*, Motorola, Inc. (1992). The Go Anywhere Phone, Motorola, Inc. (1987). CP 3000, Uniden Corporation of America (1988). CDL 410 Features, OKI Telecom (Sep. 1986). "Features and Benefits," Motorola, Inc. (1988).

(List continued on next page.)

Primary Examiner-Curtis Kuntz

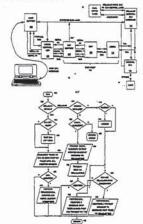
Assistant Examiner-Jason Chan

Attorney, Agent, or Firm—Pravel, Hewitt, Kimball & Krieger

[57] ABSTRACT

A modem which includes connections for both land lines and a cellular phone. The modem contains high and low level routines that allow it to perform standard AT commands rationally when connected to a cellular phone, and further perform additional AT commands that access cellular specific features. An applications software program in a computer connected to the modem can provide a number of options for determining whether to use the land line or the cellular phone when both are connected. First, it can default to the land line and only use the cellular phone if the land line is not available. Alternatively, it can first use the cellular phone and only use the land line if the cellular phone signal strength is not sufficient. Further, cellular file transfer operations can be aborted if the remaining battery life in the cellular phone is insufficient to reliably complete the transfer.

19 Claims, 7 Drawing Sheets



OTHER PUBLICATIONS

Spectrum Cellular and Dacom Systems Sign Bridge Manufacturing and Distribution Agreement for United Kingdom, Press Release dated Jan. 3, 1988, Spectrum Cellular Corporation.

Spectrum Cellular Launches Portable Office with the Introduction of its LapPak Cellular Workstation, Press Release, Feb. 8, 1989, Spectrum Cellular Corporation.

Spectrum and Telular Jointly Announce Signing of Two Contracts and Agree to Collaborate on New Products, Press Release, Dec. 6, 1988, Spectrum Cellular Corporation.

Spectrum Cellular Announces Expanded Product Line Offering Additional Compatibility for its Bridge Cellualr Modem, Press Release, Dec. 13, 1988, Spectrum Cellular Corporation.

Case Histories in Cellular Data Communications, Spectrum Cellular 1988.

Peter Shikli, Solving Data Communications Problems with the Cellular Network, PICO Jan. 1988, pp. 14–17. HazCom One TM, Spectrum Cellular.

Stockholder Relations, Spectrum Cellular.

RM

Ameritech Mobile Communications Announces Mobil Access Data Service Utilizing Spectrum's Bridge and Span Cellular Modems, Press Release, Feb. 17, 1987, Spectrum Cellular.

Spectrum Cellular and Omnitel Announce Joint Development of First Internal Laptop Cellular Modem, Press Release, Aug. 24, 1987, Spectrum Cellular.

Tom Steinert-Threlkeld, Ringing a new era for pay phones, The Dallas Morning News.

Robert C. Adair, *Cellular & Data: Coming on Strong*, Cellular Business Jul. 1987, pp. 34-35.

Spectrum Cellular: The First Name in Cellular Data Communication, The Only Name You Need to Know. Selling Cellular Data Communications Applications, Spectrum Cellular Corporation.

Compaq Apache Modem Board Level Design Specification, p. 12.

Toshiba Modem Boasts Wireless Transmission, Jun. 18, 1990.

Networking, Infoworld, Feb. 19, 1990 pp. 31, 39.

Press Kit, Intelligence Technology Corporation, Nov. 12, 1990.

Hardware, Infoworld, Feb. 12, 1990, p. 23.

GRiD PowerTek Debut Cellular/Laptop Combination, Feb. 26, 1990, p. 19.

GRiD Portable Cellular Workstation Technical Specifications, PowerTek Industries, Inc.

Toshiba Modems, May 1990, Toshiba America Information Systems, Inc.

The Cellular Handbook, Microcom, Inc. 1990.

MNP Cellular Modems, Microcom Systems, Inc. 1990. Microcom Announces New Cellular Family, Press Release, Jun. 26, 1990, Microcom.

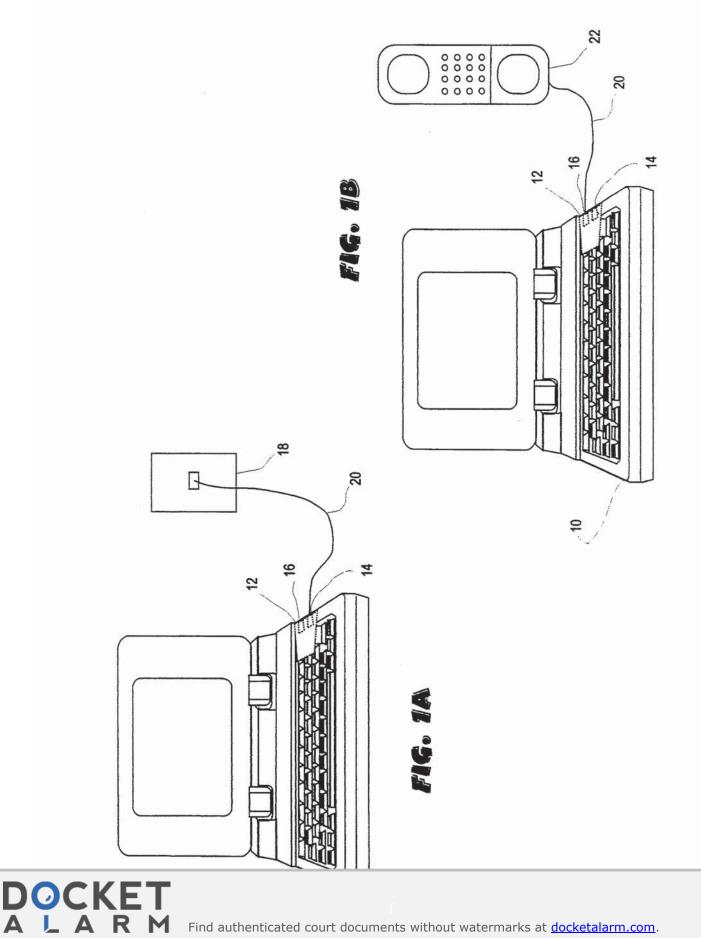
Michael R. Zimmerman, Microcom Unveils Cellular Modems for Laptop Users, PC Week, Jun. 25, 1990.

Microcom Networking Protocol (MNP), A Brief Technical Overview, Microcom, Inc. 1990.

Celjack TM Technical Specification, Telular, Inc., 1989.

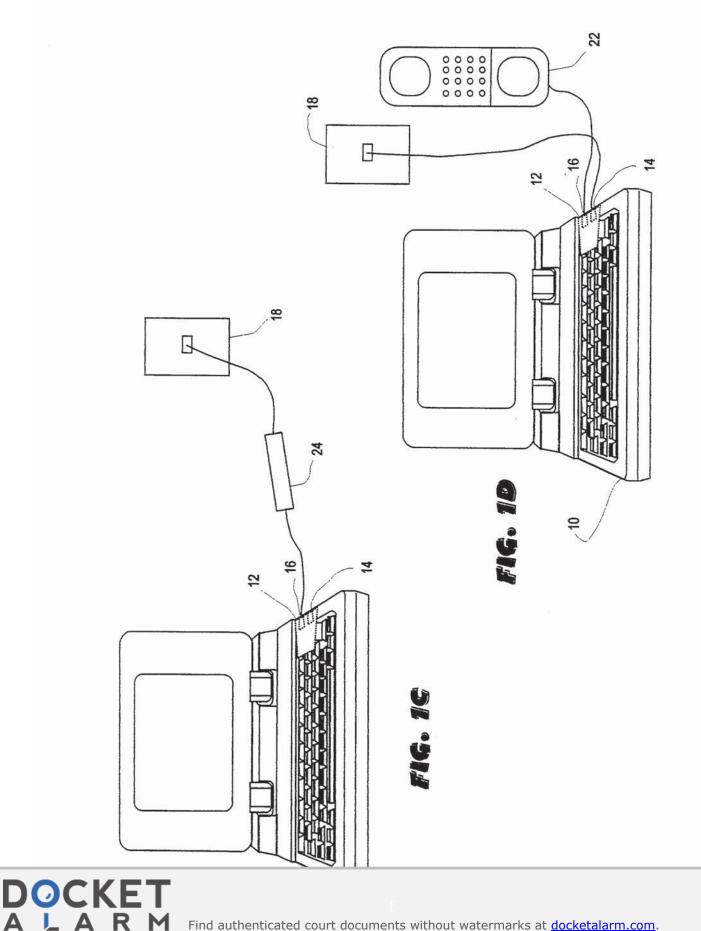
Compaq Mozart Modem Specification Rev. CX, pp. 15, 61.

Α



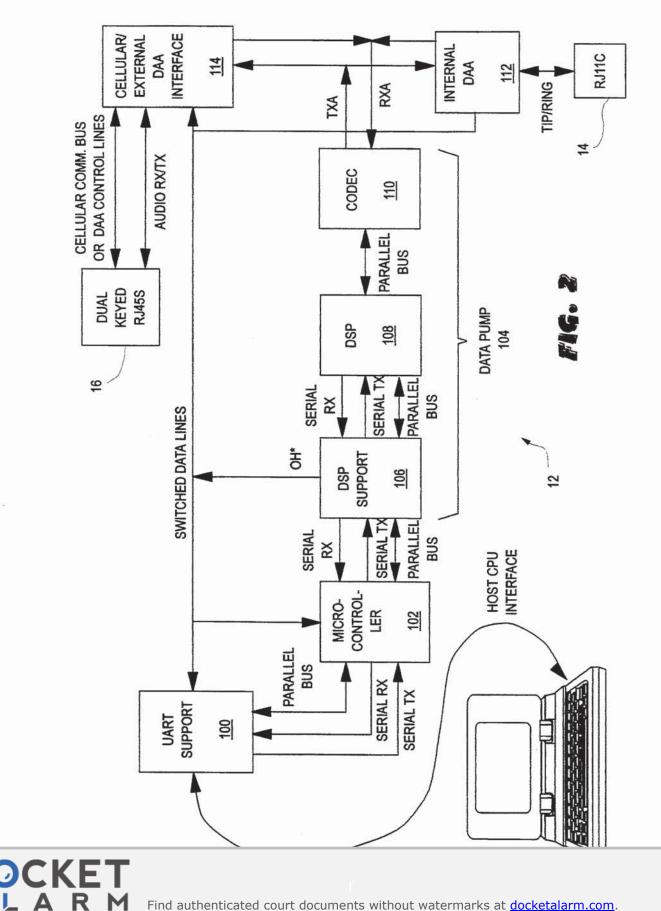
Find authenticated court documents without watermarks at docketalarm.com.

Α



Find authenticated court documents without watermarks at docketalarm.com.

Α



Find authenticated court documents without watermarks at docketalarm.com.

DOCKET A L A R M



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.