



[54] RANDOM ACCESS IN MOBILE RADIO TELEPHONE SYSTEMS

[75] Inventor: Paul W. Dent, Stehag, Sweden

[73] Assignee: Ericsson GE Mobile Communications Inc., Paramus, N.J.

[21] Appl. No.: 222,008

[22] Filed: Apr. 4, 1994

Related U.S. Application Data

[63] Continuation of Ser. No. 867,149, Apr. 10, 1992.

[51] Int. Cl.⁶ H04J 13/04; H04B 7/216

[52] U.S. Cl. 375/200; 455/54.2;

455/70

[58] Field of Search 375/1; 455/70, 54.2

[56] References Cited

U.S. PATENT DOCUMENTS

4,222,115	9/1980	Cooper et al.	375/1
4,435,840	3/1984	Kojima et al.	455/33
4,485,486	11/1984	Webb et al.	455/54.2
4,613,990	9/1986	Halpern	455/33
4,677,687	6/1987	Matsuo	455/10
4,694,467	9/1987	Mui	375/1
4,696,027	9/1987	Bonta	379/60
4,811,421	3/1989	Havel et al.	455/67.1 X
4,870,698	9/1989	Katsuyama et al.	455/67.1
4,984,247	1/1991	Kaufmann et al.	375/1
5,056,109	10/1991	Gilhousen et al.	375/1
5,151,919	9/1992	Dent	375/1

FOREIGN PATENT DOCUMENTS

0288904 11/1988 European Pat. Off. .
0361299 4/1990 European Pat. Off. .
WO91/07037 5/1991 WIPO .

OTHER PUBLICATIONS

Patent Abstracts of Japan, vol. 15, No. 3 (E-1019) 7 Jan. 1990, & JP-A-02 256 331 (Sharp), 17 Oct. 1990.
Patent Abstracts of Japan, vol. 16, No. 188 (E-1198) 7 May 1992, & JP-A-04 023 623 (NEC Corp), 28 Jan. 1992.
Thompson et al., "Automatic Power Control in the PTARMIGAN SCRA Sybsystem," *IEE Conference Publication No. 139*, 1976.

Primary Examiner—Gilberto Barrón, Jr.
Attorney, Agent, or Firm—Burns, Doane, Swecker & Mathis

[57] ABSTRACT

The present invention includes a system and method for minimizing interference between two radio stations, e.g., a mobile radio telephone and a fixed base station, at the initiation of a radio communication. A mobile station initiates a random access at the lowest power level and increases the transmission power level until the base station detects the access signal. Once detected, the power level of the message is maintained at the detected level so that the signal interference is avoided. The present invention also provides a mechanism for synchronizing random access communications between mobile stations and the base station despite variation in distances between the mobile and base stations.

43 Claims, 6 Drawing Sheets

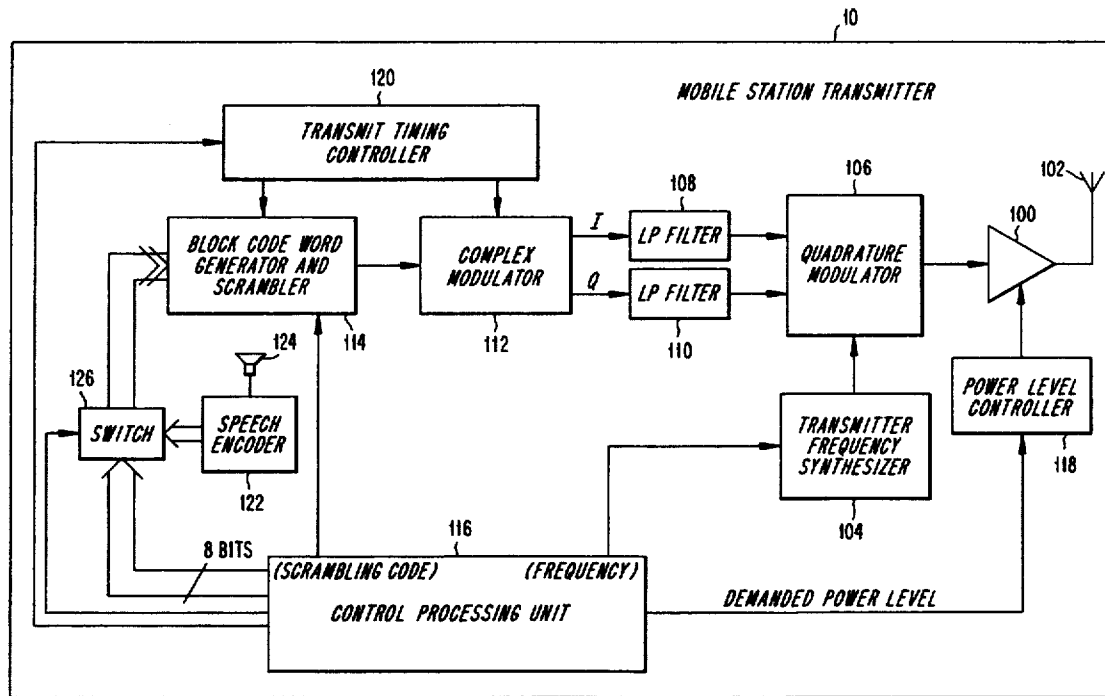


FIG. 1

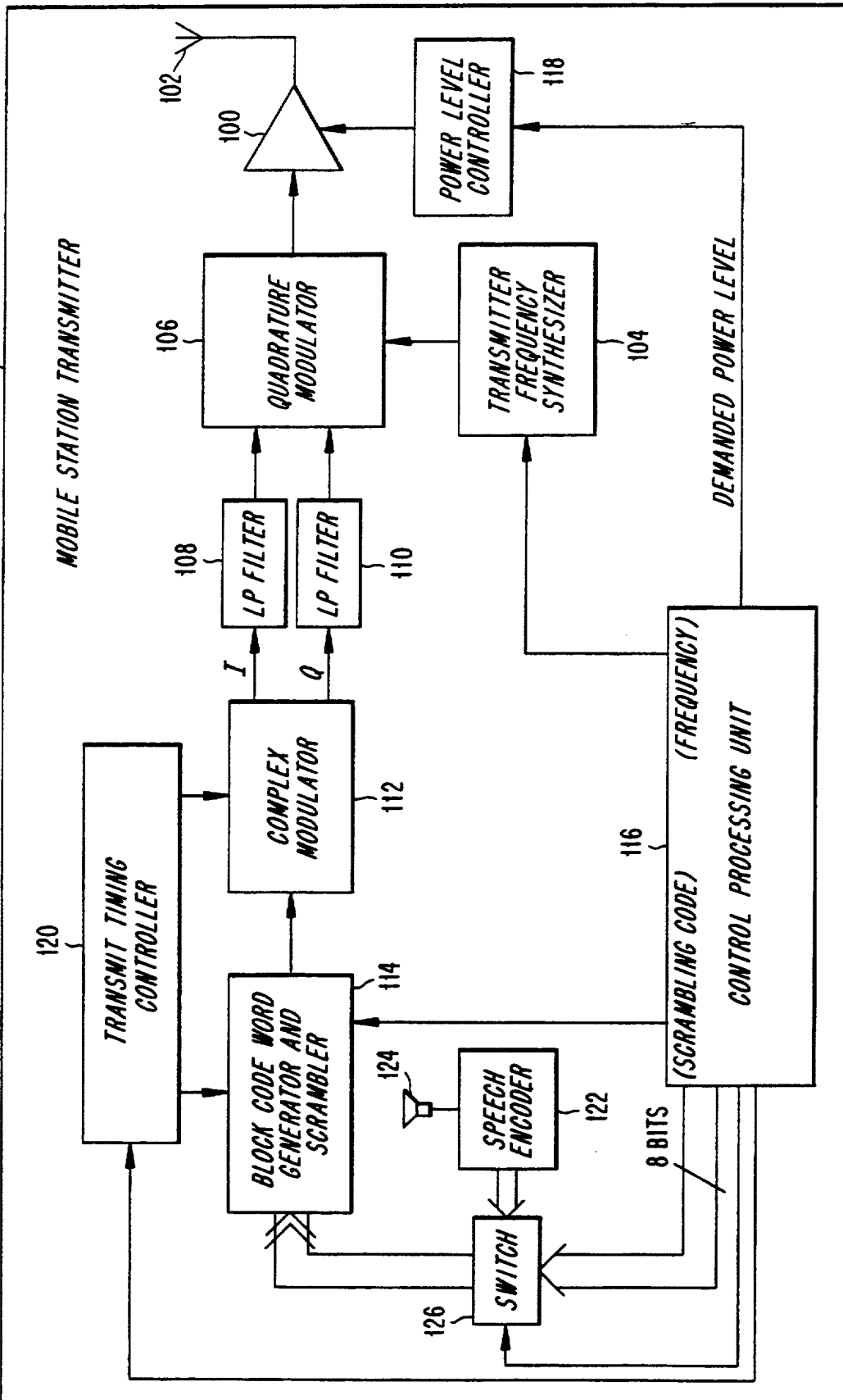
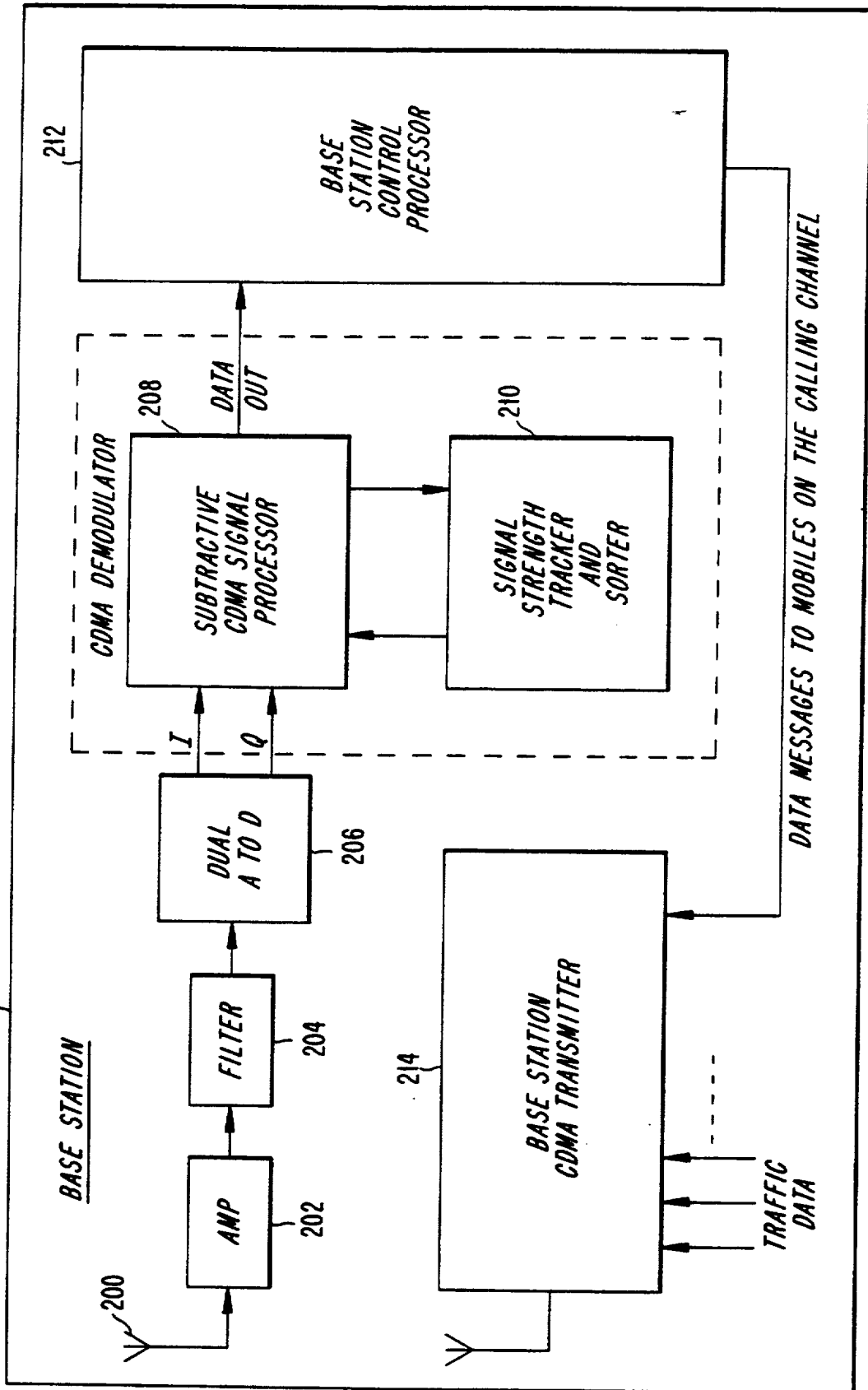
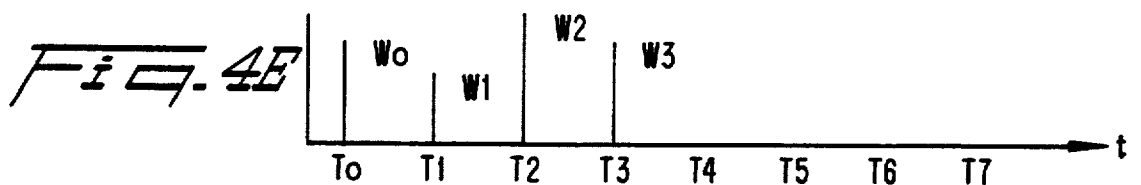
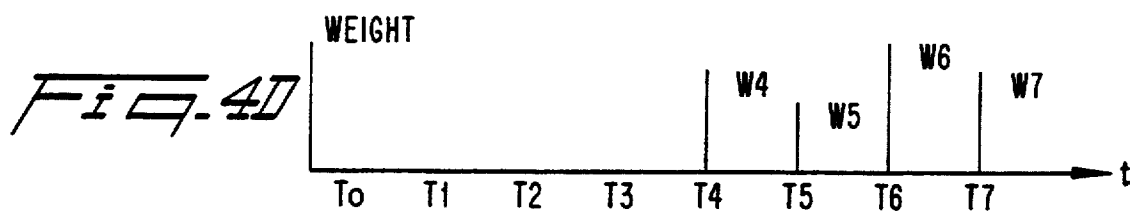


FIG. 2





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.