



US 20060262871A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2006/0262871 A1**

**Cho et al.** (43) **Pub. Date: Nov. 23, 2006**

(54) **METHOD AND APPARATUS FOR MULTIPLEXING DATA AND CONTROL INFORMATION IN WIRELESS COMMUNICATION SYSTEMS BASED ON FREQUENCY DIVISION MULTIPLE ACCESS**

(30) **Foreign Application Priority Data**

May 3, 2005 (KR)..... 2005-37294

**Publication Classification**

(51) **Int. Cl.**  
**H04K 1/10** (2006.01)

(52) **U.S. Cl.** ..... 375/260

(76) Inventors: **Joon-Young Cho**, Suwon-si (KR);  
**Ju-Ho Lee**, Suwon-si (KR);  
**Hwan-Joon Kwon**, Suwon-si (KR);  
**Yun-Ok Cho**, Suwon-si (KR)

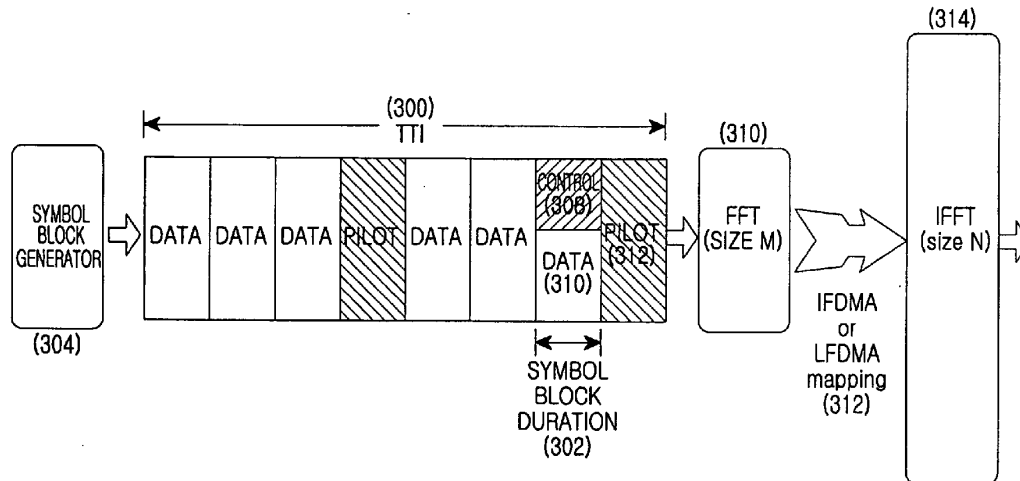
(57) **ABSTRACT**

Correspondence Address:  
**ROYLANCE, ABRAMS, BERDO & GOODMAN, L.L.P.**  
**1300 19TH STREET, N.W.**  
**SUITE 600**  
**WASHINGTON,, DC 20036 (US)**

An apparatus for transmitting data in a frequency division multiple access based communication system is disclosed. The apparatus includes a symbol block generator for generating a symbol block in a predetermined symbol block period within one TTI when control information to be transmitted exists in the TTI, an FFT unit for performing FFT on the symbol block, and an IFFT unit for performing IFFT on signals output from the FFT unit and then transmitting the signals. The symbol block includes the control information and data to be transmitted. The TTI includes multiple symbol block periods.

(21) Appl. No.: **11/416,393**

(22) Filed: **May 3, 2006**



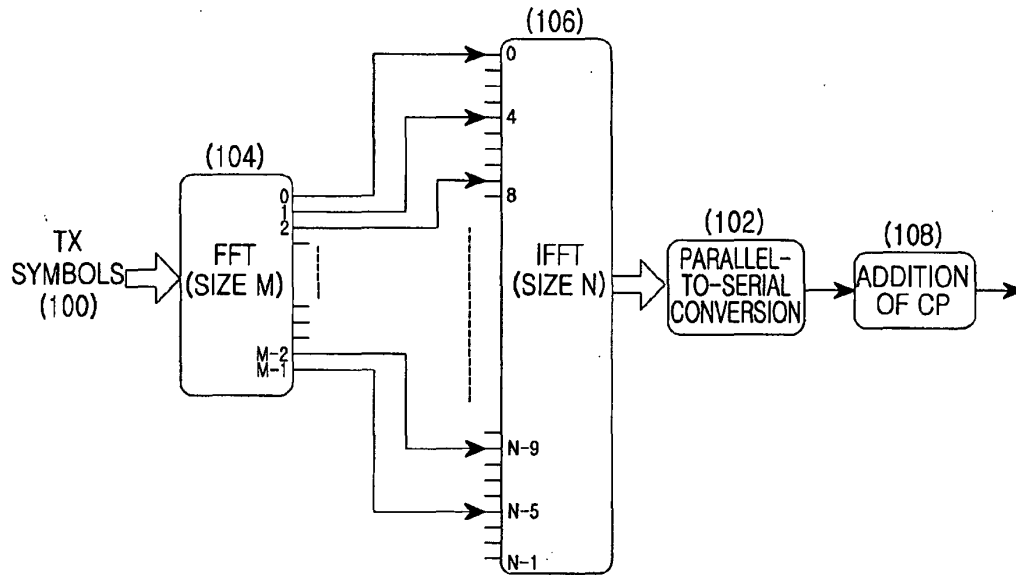


FIG. 1  
(CONVENTIONAL ART)

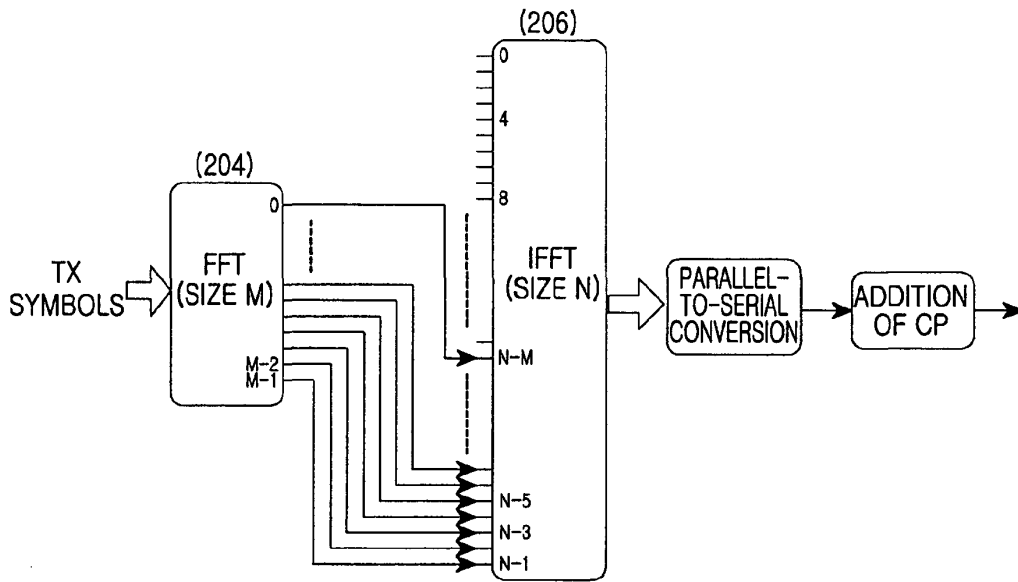


FIG.2  
(CONVENTIONAL ART)

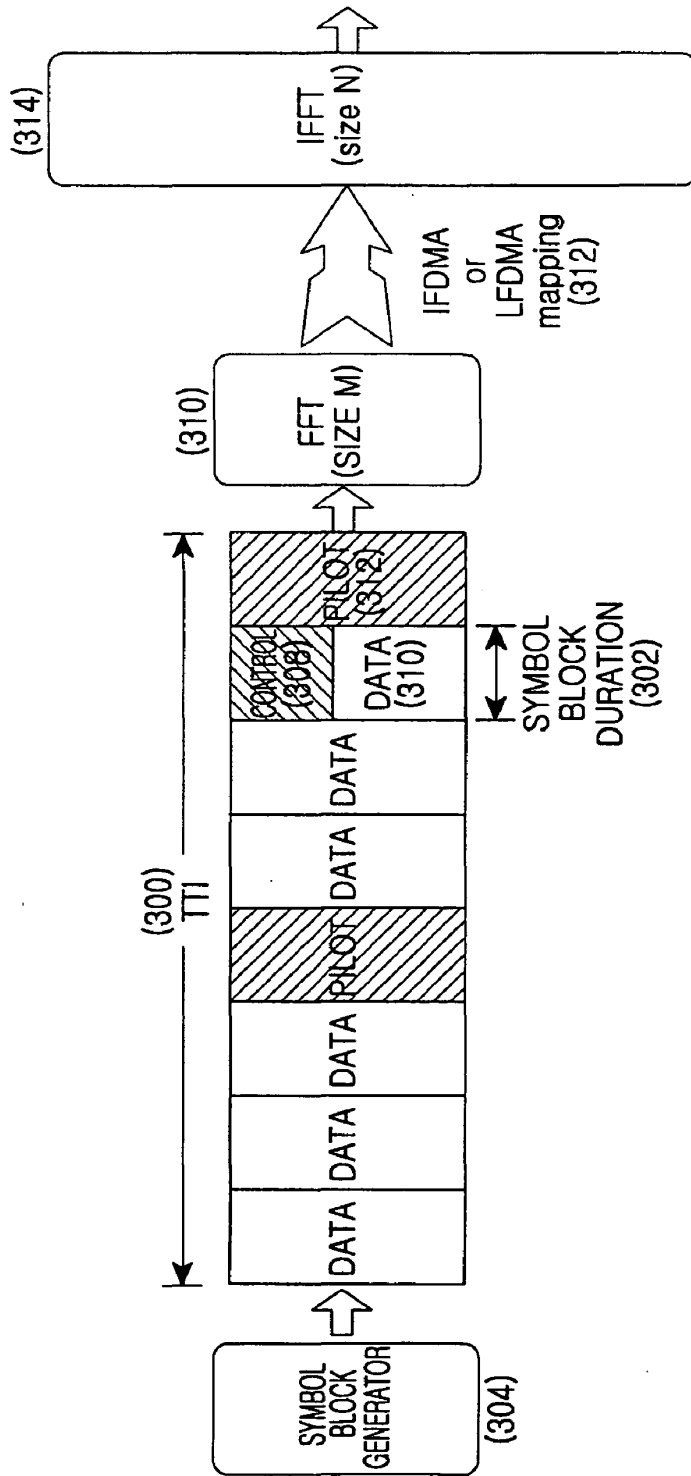


FIG. 3

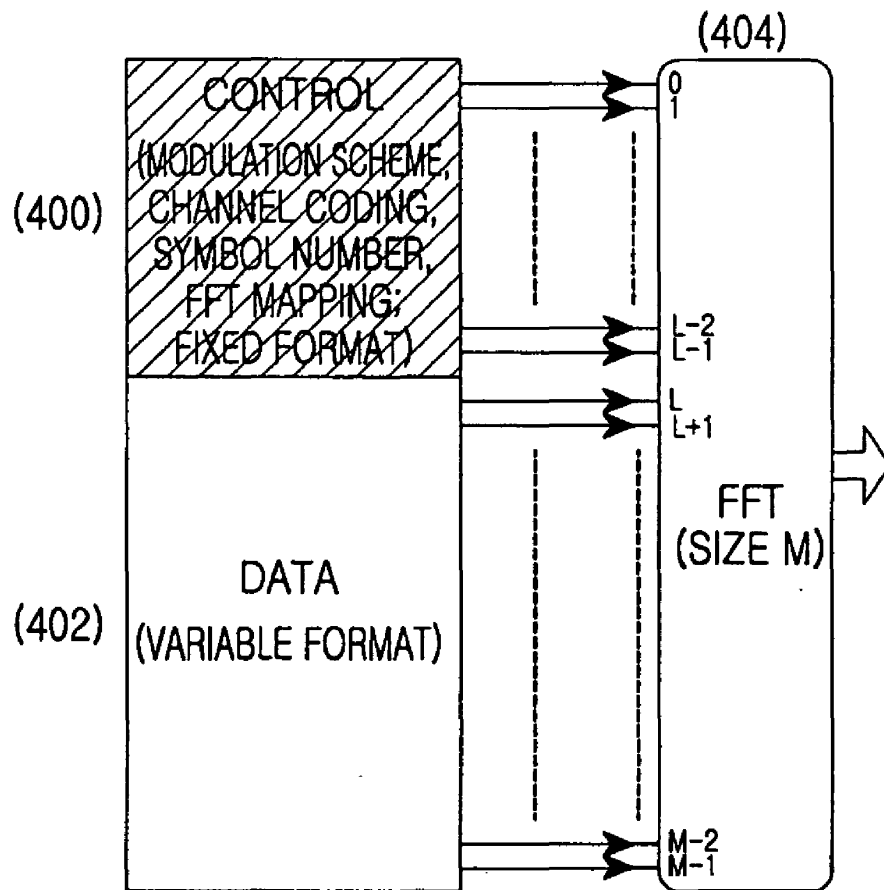


FIG.4

# 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.