



US006005876A

# United States Patent [19] Cimini, Jr. et al.

[11] Patent Number: **6,005,876**  
[45] Date of Patent: **Dec. 21, 1999**

[54] **METHOD AND APPARATUS FOR MOBILE DATA COMMUNICATION**

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[75] Inventors: **Leonard Joseph Cimini, Jr.**, Howell;  
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[73] Assignee: **AT&T Corp.**, New York, N.Y.

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[21] Appl. No.: **08/718,718**

[22] Filed: **Sep. 24, 1996**

[51] Int. Cl.<sup>6</sup> ..... **H04J 3/12**

*Primary Examiner*—Ajit Patel  
*Assistant Examiner*—Bob A Phunkulh

[52] U.S. Cl. .... **370/525; 370/203; 375/200; 375/260**

### [57] ABSTRACT

[58] Field of Search ..... 370/208, 320,  
370/335, 342, 468, 525, 526, 203, 522;  
375/200, 203, 260

A high-speed wireless transmission system is employable in a macro-cellular environment. In the system multiple transmit antennas are employed. Multiple carrier tones are used to transmit the data. The carrier tones can be assigned to the respective transmit antennas in such a manner as to provide each antenna with a subset of carrier tones with each subset being spread over the transmission spectrum. In addition, operation is enhanced by providing Reed-Solomon coding of the data across consecutive time intervals.

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**13 Claims, 5 Drawing Sheets**

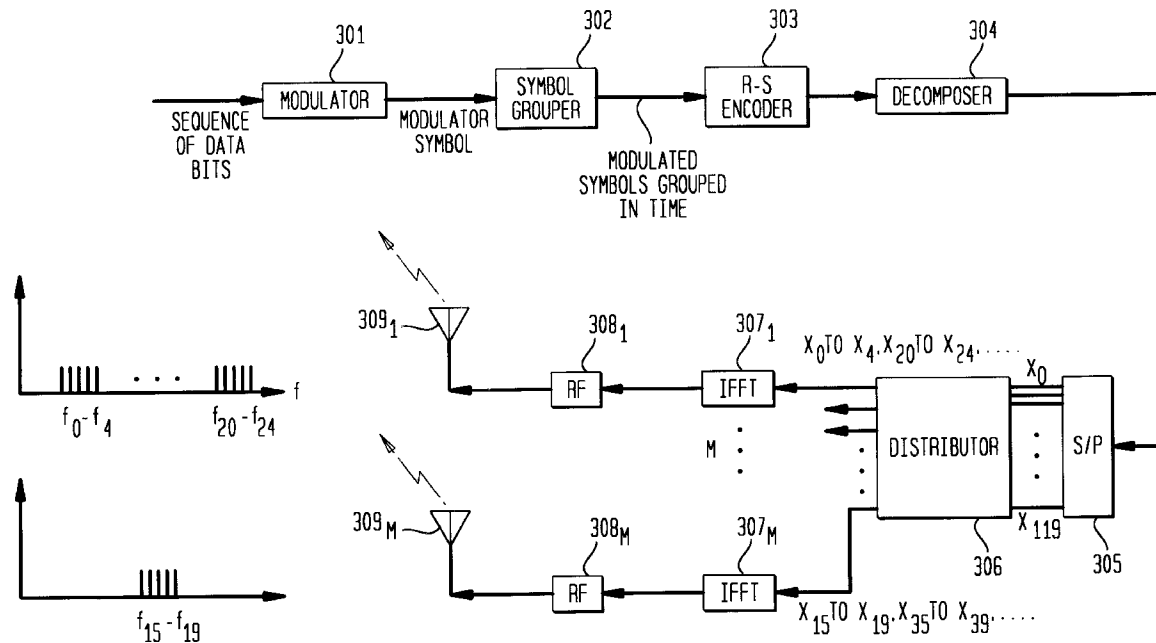


FIG. 1A

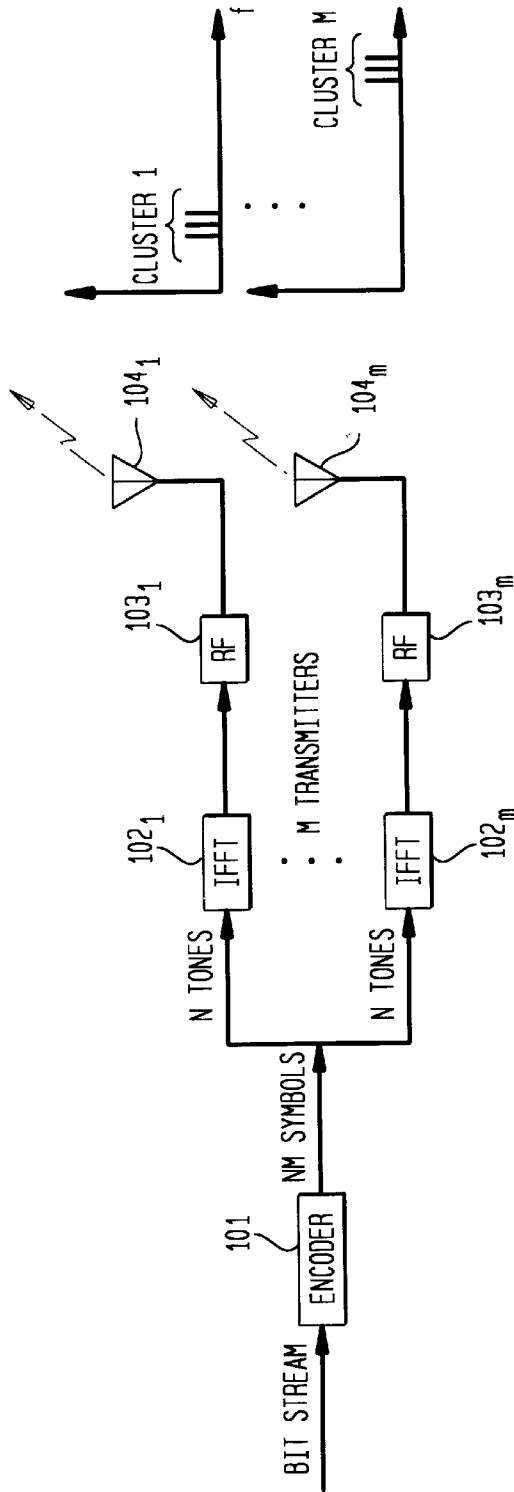


FIG. 1B

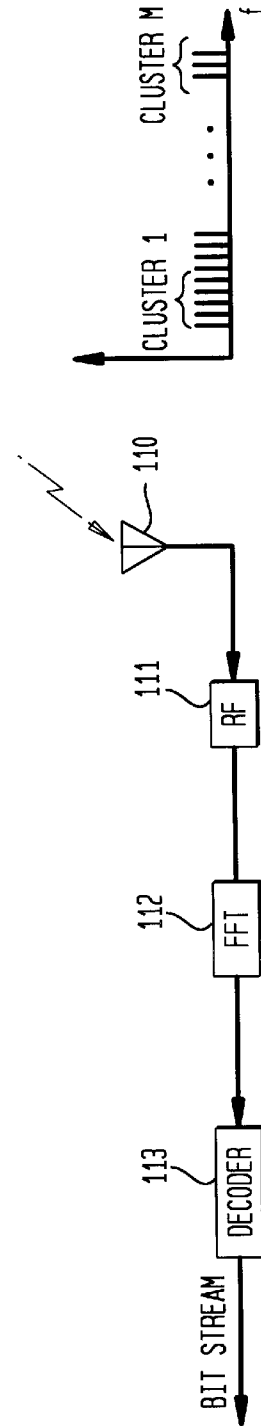


FIG. 2

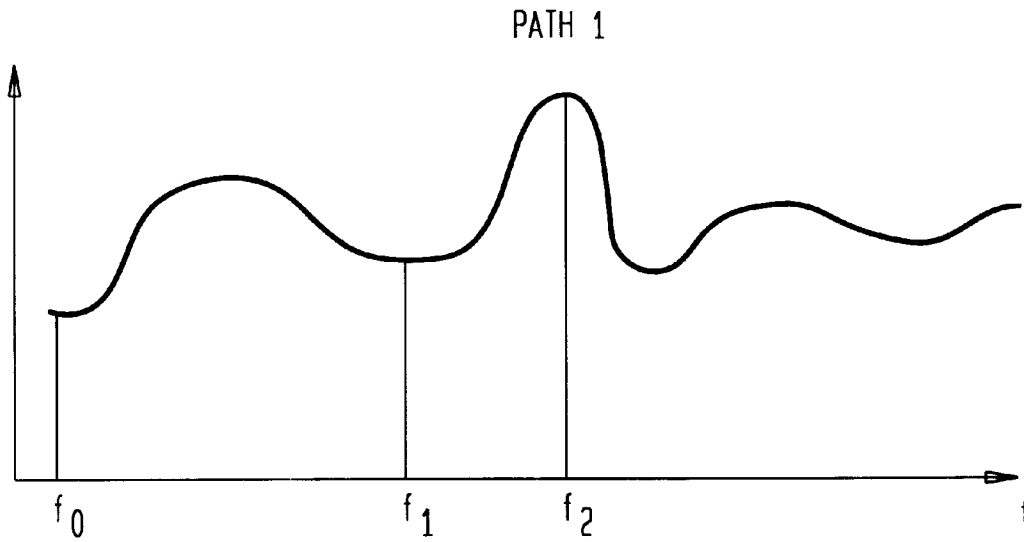


FIG. 4

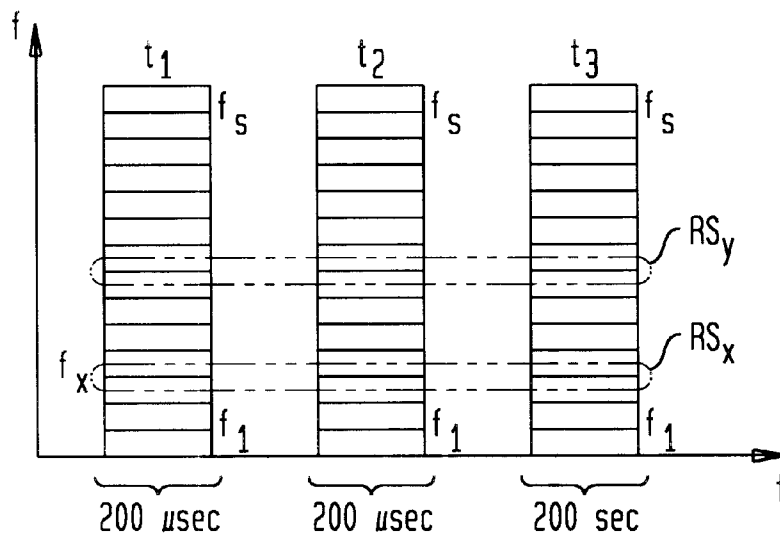


FIG. 3

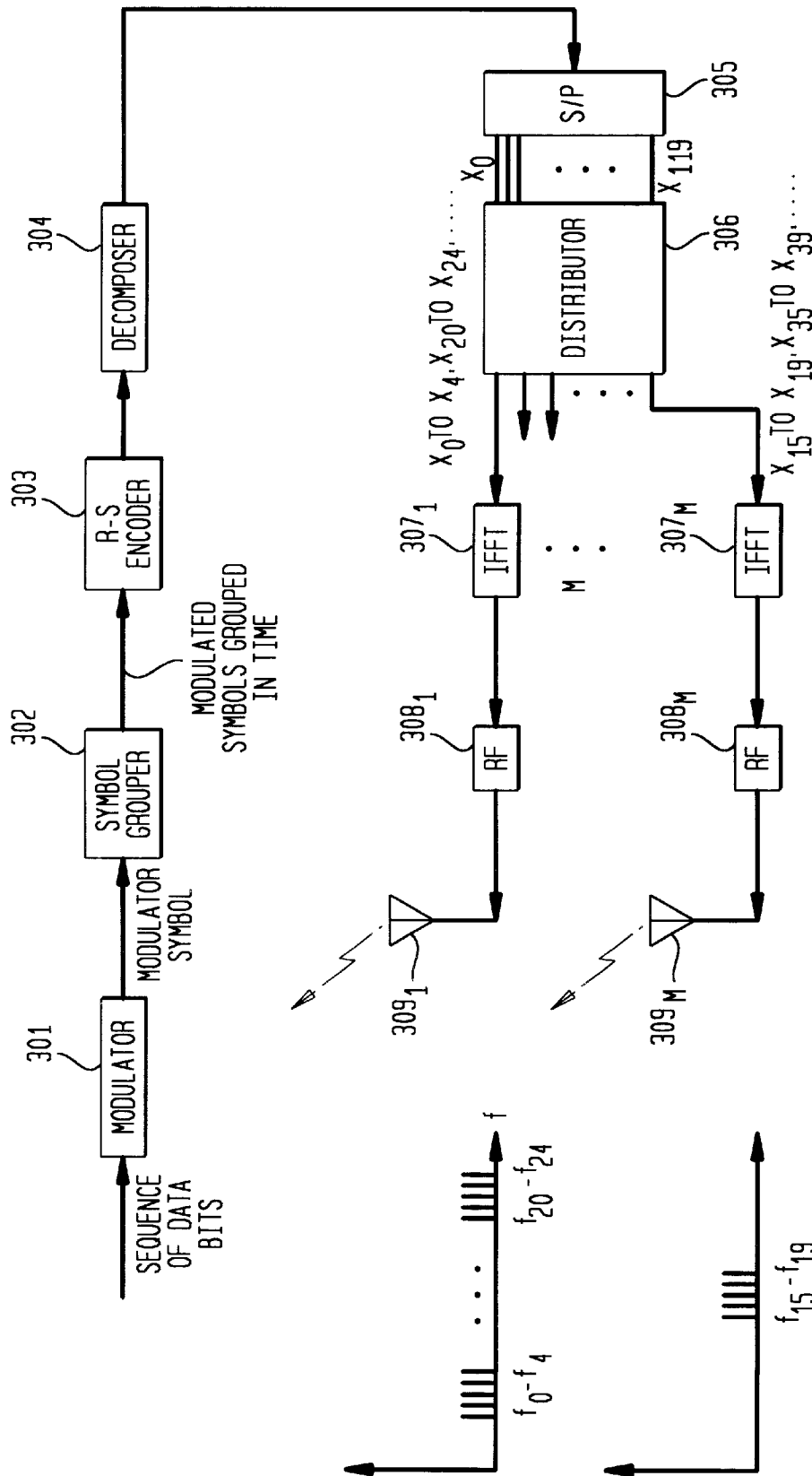
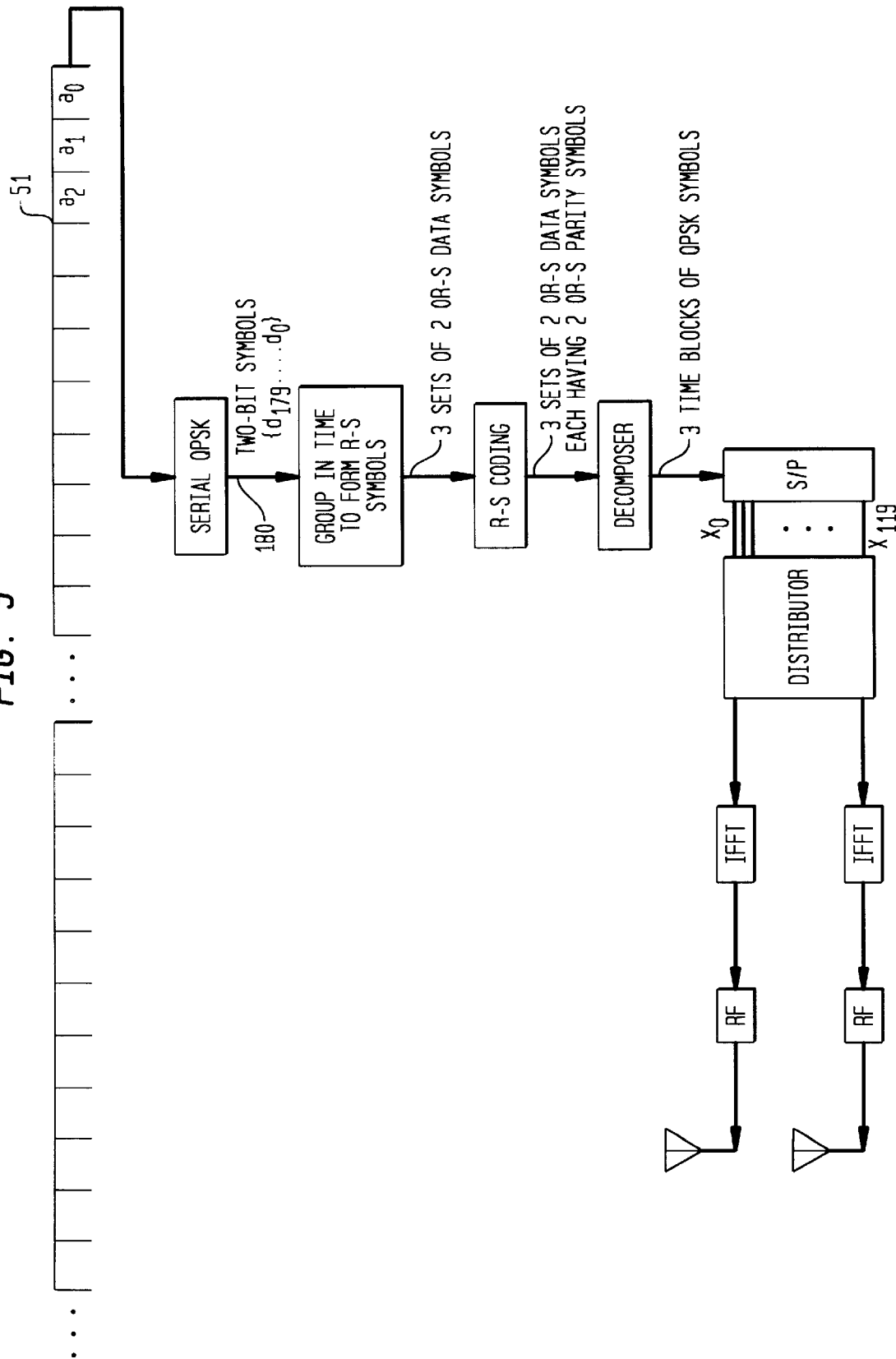


FIG. 5



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