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Boer et al.

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[54] MULTIRATE WIRELESS DATA COMMUNICATION SYSTEM

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[51] Int. Cl.⁶ H04Q 1/30; H04L 12/28

[52] U.S. Cl. 395/200; 370/349; 370/342; 370/465; 375/202; 375/206; 375/347

[58] Field of Search 370/349, 342, 370/338, 465; 375/202, 206, 347, 349; 395/200.13, 200.1

[56] References Cited

U.S. PATENT DOCUMENTS

5,206,881	4/1993	Messenger et al.	375/1
5,379,290	1/1995	Kleijne	370/85.2
5,592,468	1/1997	Sato	370/252

OTHER PUBLICATIONS

Wilkinson Tom; "High Data Rate Radio LANs", IEEE, pp. 3/1-3/8. No Date.
Hayes, Victor; "Standardization Efforts for Wireless LANs", IEEE Network Magazine, pp. 19-20, Nov. 1991.

"Welcome to IEEE P802.11"; Working Group for Wireless Local Area Networks; Set-up on Dec. 17, 1996. update of May 20, 1997.

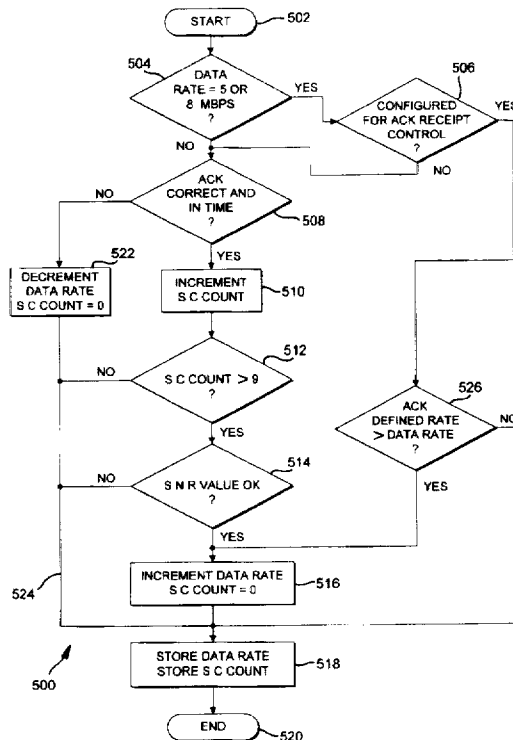
"Bell Labs Unveils 10-Megabit Wireless-Network Technology, Offering Five Times Today's Highest Data-Transmission Capacity"; ICA New Product Announcement, Apr. 22, 1997.

Primary Examiner—James P. Trammell
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[57] ABSTRACT

A wireless LAN includes first stations adapted to operate at a 1 or a 2 Mbps data rate and second stations adapted to operate at a 1.25 or 8 Mbps data rate. The 1 and 2 Mbps rates use DBPSK and DQPSK modulation, respectively. The 5 and 8 Mbps rates use PPM/DQPSK modulation. All four data rates use direct sequence spread spectrum (DSSS) coding. All transmitted messages start with a preamble and header at the 1 Mbps rate. The header includes fields identifying the data rate for the data portion of the message, and a length field. For a 2 Mbps transmission the length field identifies the number of bytes in the data field. For a 5 or 8 Mbps the length field identifies the number of bytes in the data field which, if transmitted at 2 Mbps, would take the same transmission time of the data field, and is thus a fraction 2/5 or 2/8 of the actual number of the bytes. With this arrangements, all the stations are interoperable in a co-existent manner in the LAN.

6 Claims, 6 Drawing Sheets



Samsung Ex. 1304
(Samsung v. Rembrandt)

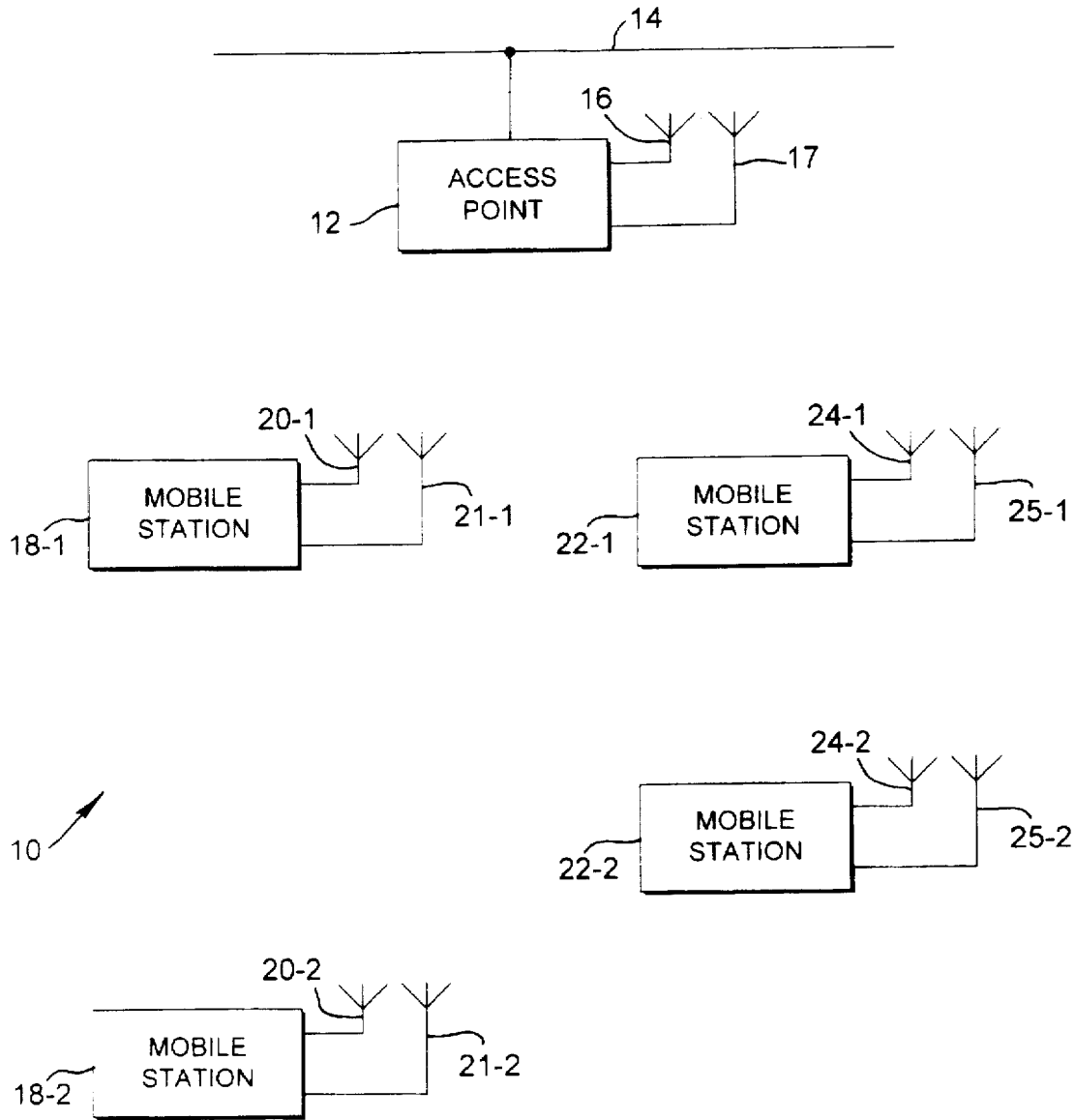


FIG. 1

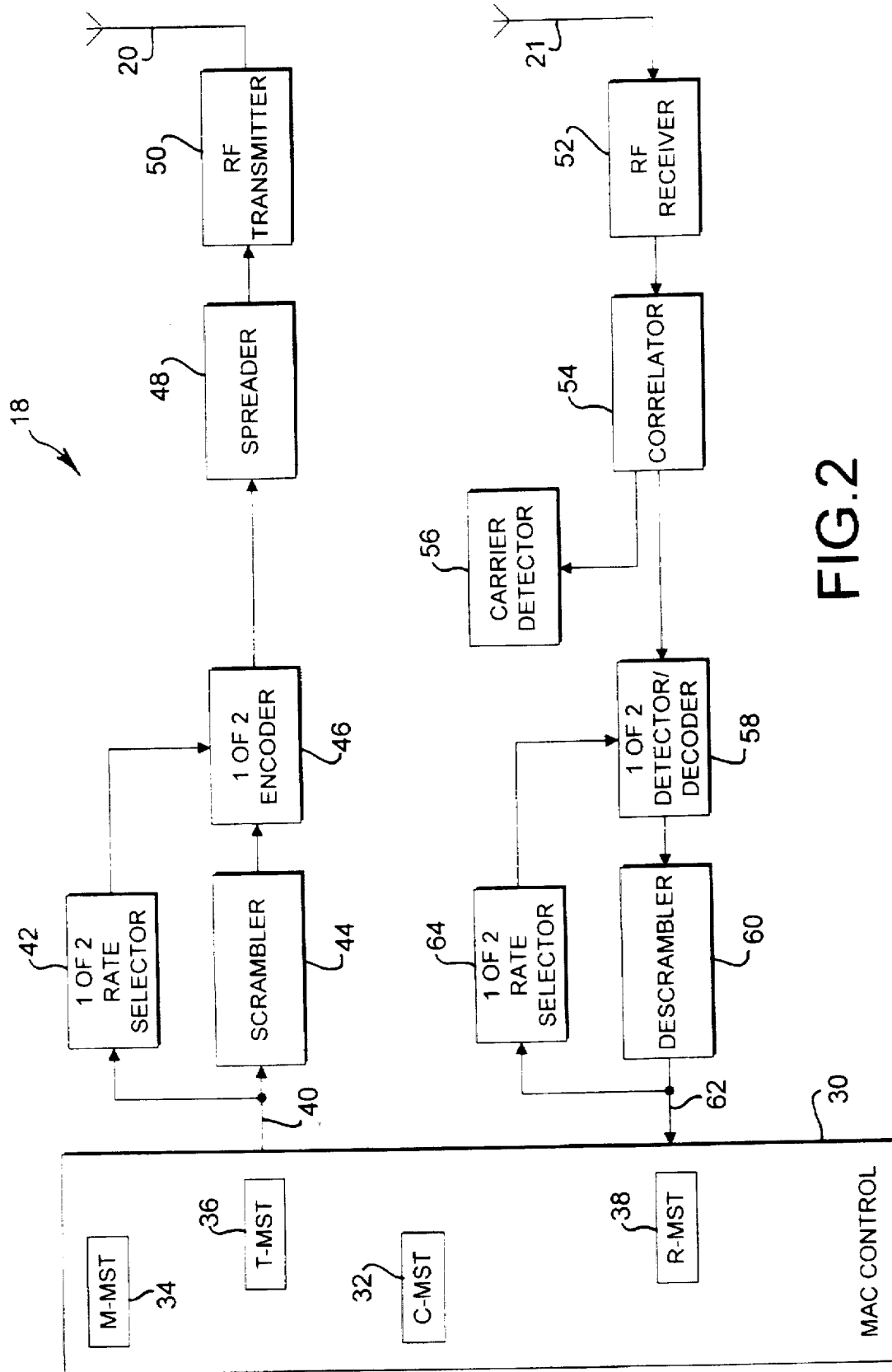


FIG. 2

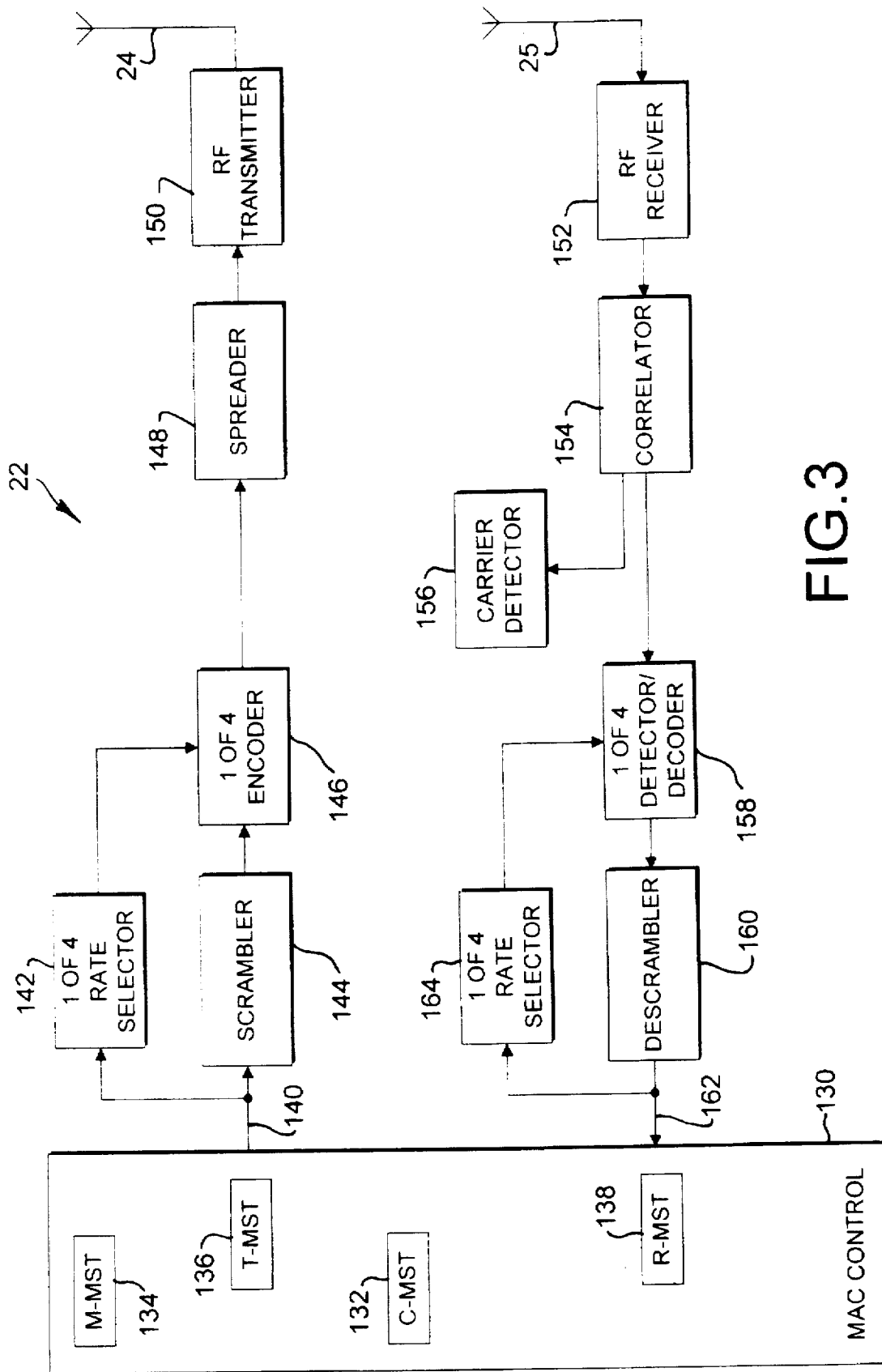


FIG. 3

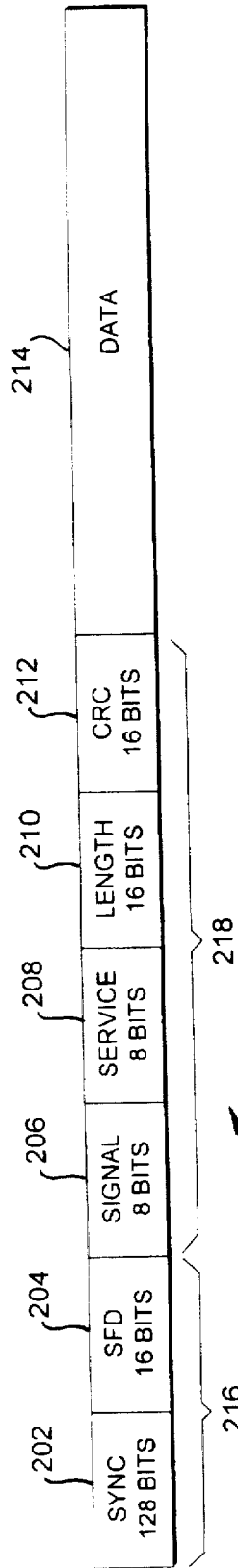


FIG. 4

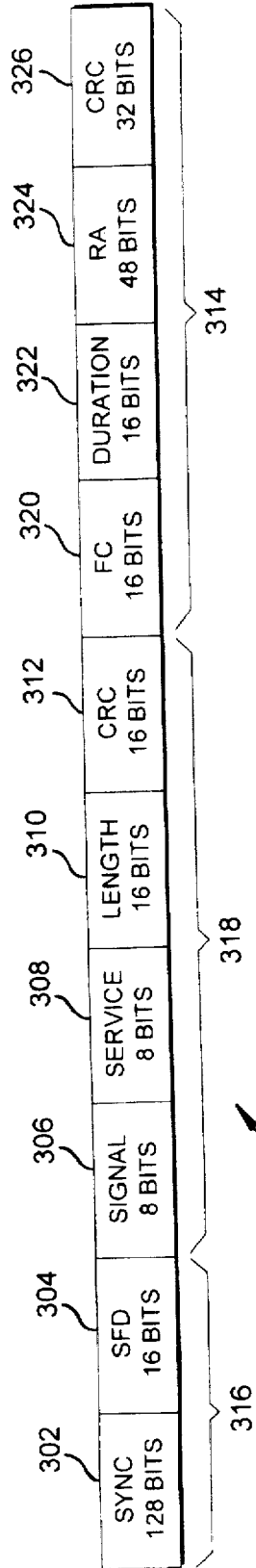


FIG. 5

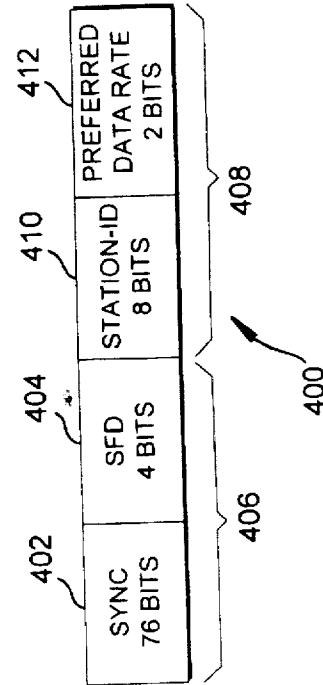


FIG. 6

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