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(54) **POWER SAVING VIA PHYSICAL LAYER ADDRESS FILTERING IN WLANS**

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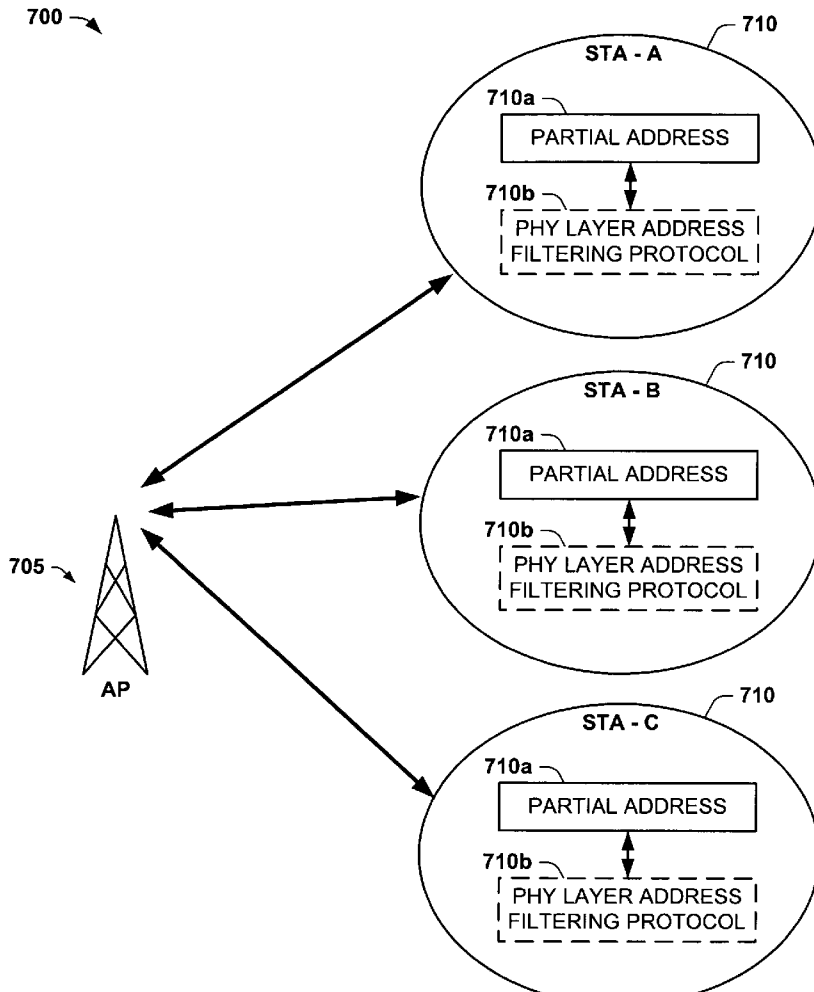
(51) **Int. Cl.<sup>7</sup>** ..... **H04L 12/28**

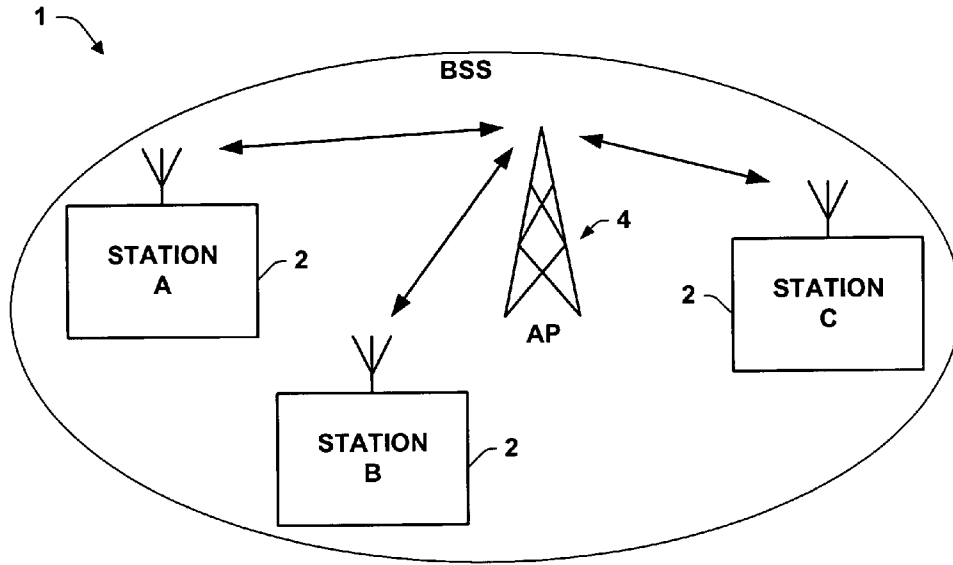
(52) **U.S. Cl.** ..... **370/311; 370/389**

(57) **ABSTRACT**

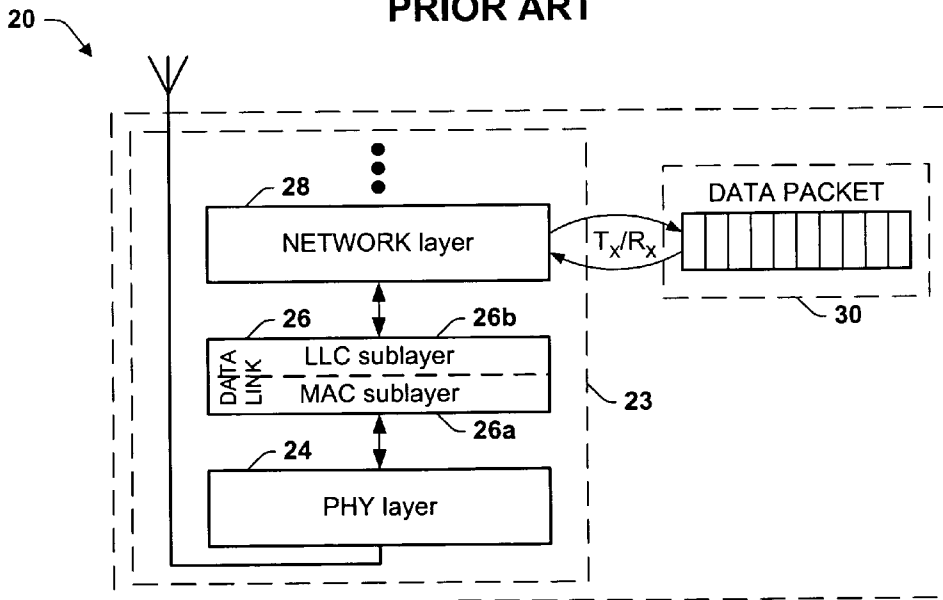
A system and method is described for saving power in a wireless network, using a physical layer address filtering protocol based on a partial address subset of the complete

destination MAC address. The system comprises a PHY layer filtering protocol for generating the partial address and writing the partial address into a PHY layer header portion (e.g., PLCP header) of a sending station, or reading the partial address from the PHY layer header portion upon transmission of each frame. A receiving station receives and decodes these PHY layer header portion bits, in accordance with the protocol, and compares whether the subset of bits match that of the stations' own partial address. If a station finds a match, the station then continues further decoding the frame at PHY layer and send the complete frame to the MAC layer for further processing. The stations that do not have a match will not activate their MAC layer components. Thus, the stations of the network will avoid wasting power decoding a significant portion of the complete frame of other stations of the wireless local area networks and unnecessary MAC layer processing. When group addressed, control/management frames or other such frames are detected at the sending station, the address filtering protocol may be "disabled" using a partial address containing a predetermined value (e.g., all zeros).





**FIG. 1**  
**PRIOR ART**



**FIG. 2**  
**PRIOR ART**

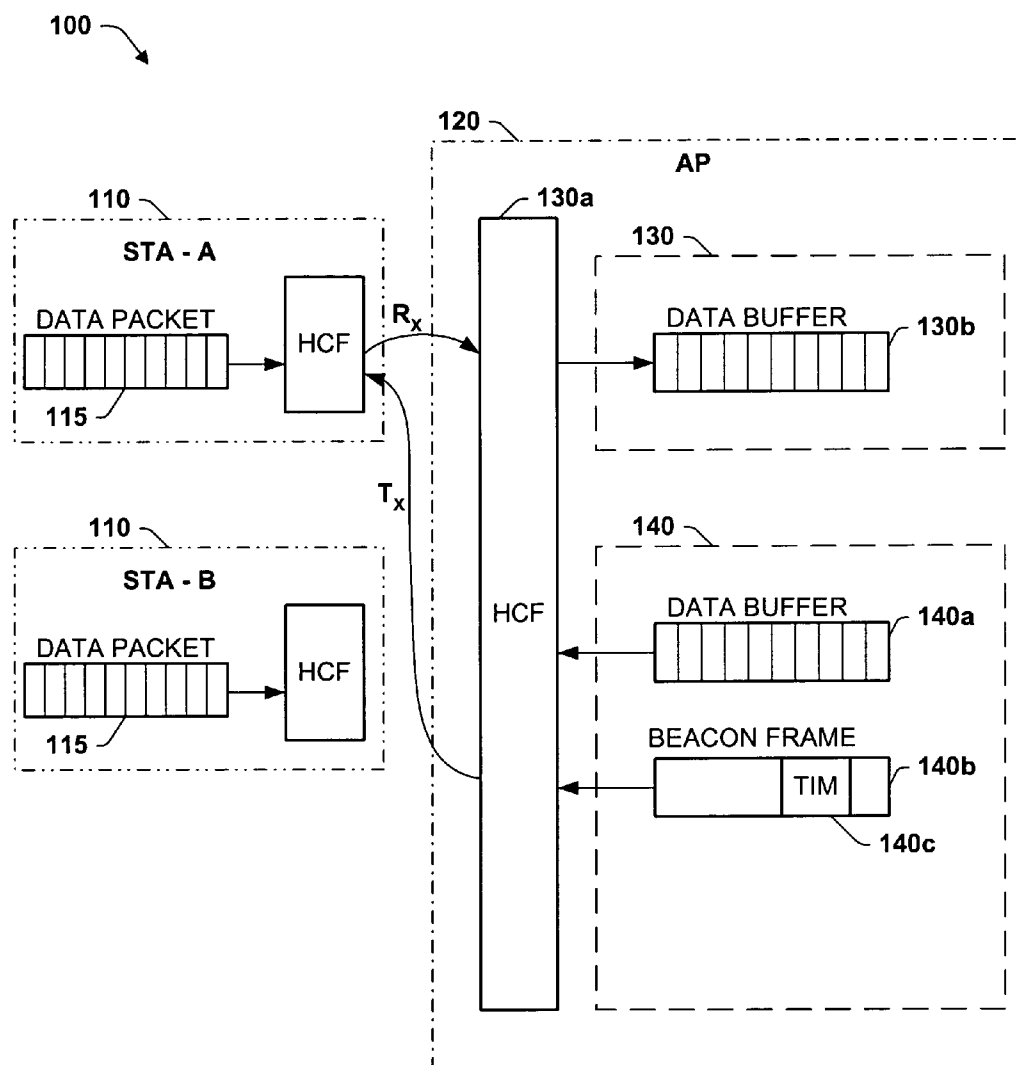
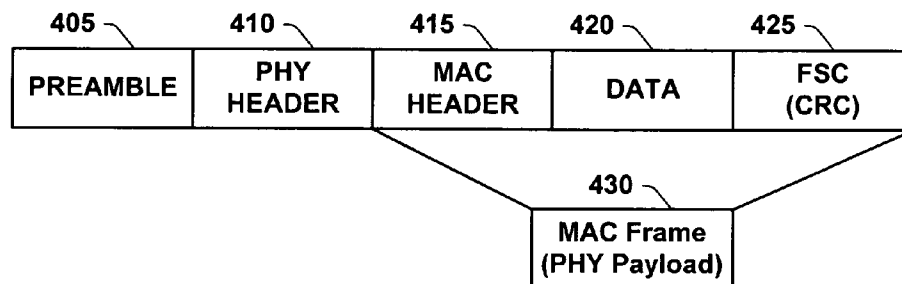


FIG. 3

400 ↗

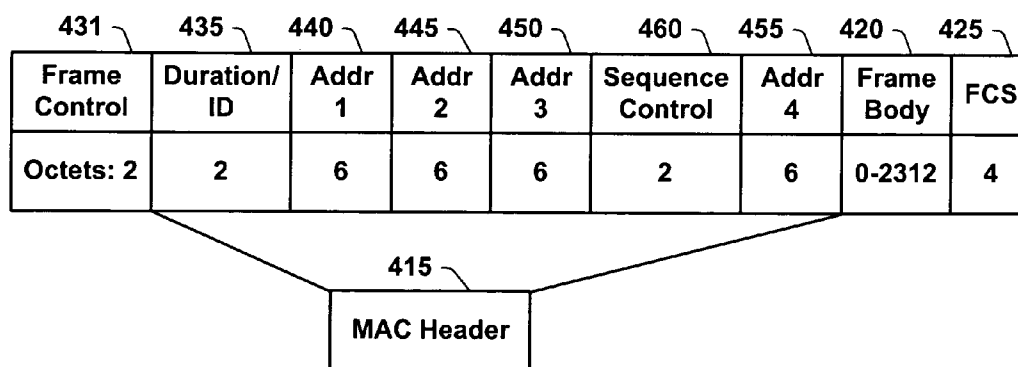
### Basic Frame Format



**FIG. 4**

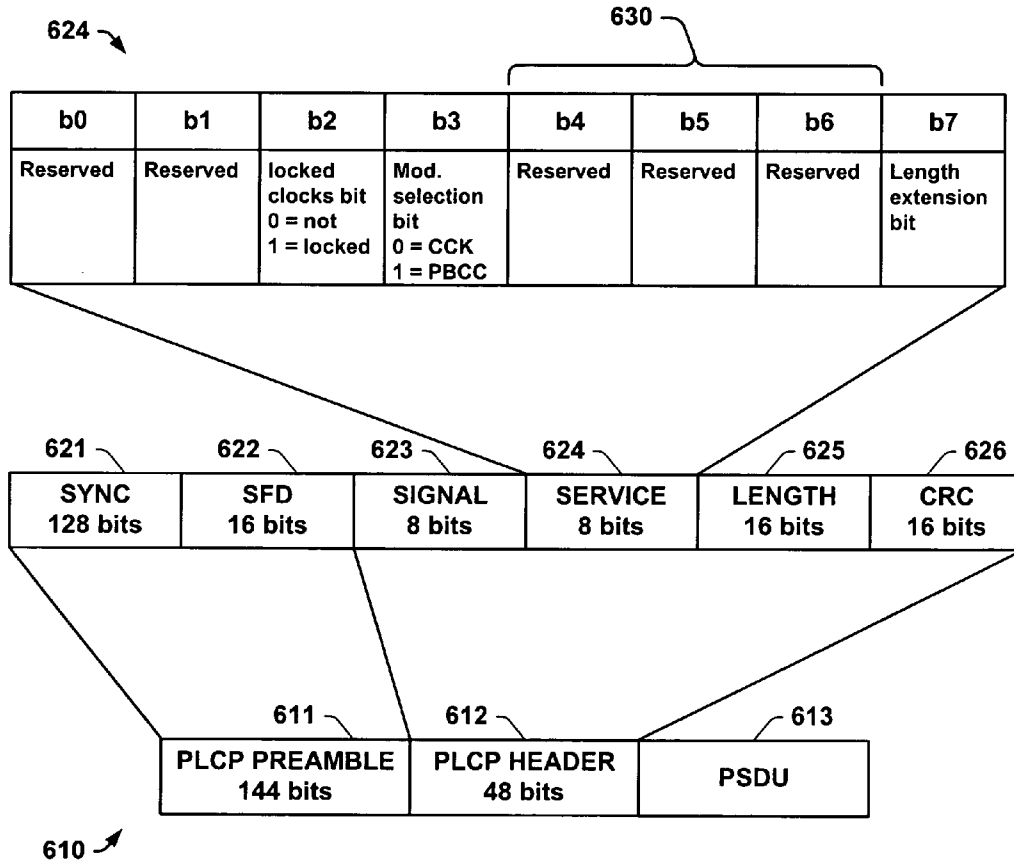
### MAC Frame Format

430 ↗



**FIG. 5**

### IEEE 802.11b PHY Frame Format



**FIG. 6**

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