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(54) **HOP SEQUENCE ADAPTATION IN A FREQUENCY-HOPPING COMMUNICATIONS SYSTEM**

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H04B 1/00   (2006.01)

(52) **U.S. Cl.** **375/138**; 375/132

(58) **Field of Classification Search** 375/200, 375/202, 130–153, 267; 455/450, 464; 370/338, 370/333, 330
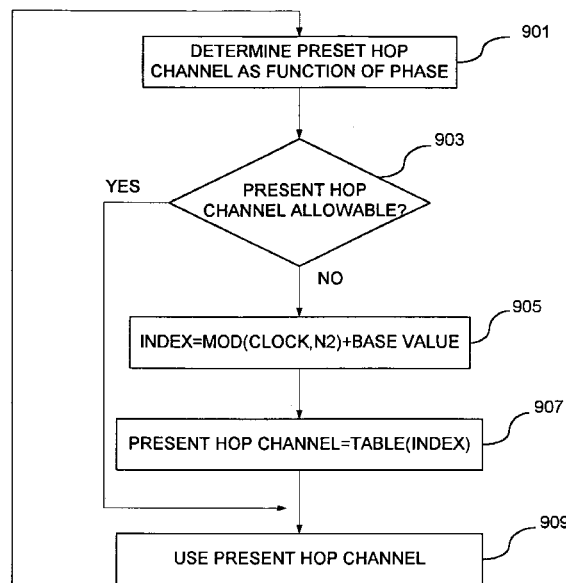See application file for complete search history.

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(57)   **ABSTRACT**

A hop channel is selected for use in a channel hopping communication system that includes a sequence of hop channels, wherein the sequence comprises a set of forbidden hop channels and a remaining set of allowable hop channels. Selection involves selecting a hop channel from the sequence as a function of a present phase. If the selected hop channel is an allowable hop channel, then the selected hop channel is used for communication during the present phase. If the selected hop channel is a forbidden hop channel, then a time-varying parameter is used to select a substitute hop channel from the set of allowable hop channels. The substitute hop channel is then used for communication during the present phase. The time-varying parameter may, for example, be a clock value. With this strategy, the resultant hopping sequence is identical to the original hopping sequence whenever the original sequence calls for an allowable hop channel. In all other cases, a substitute hop channel is dynamically selected from the set of allowable hop channels.
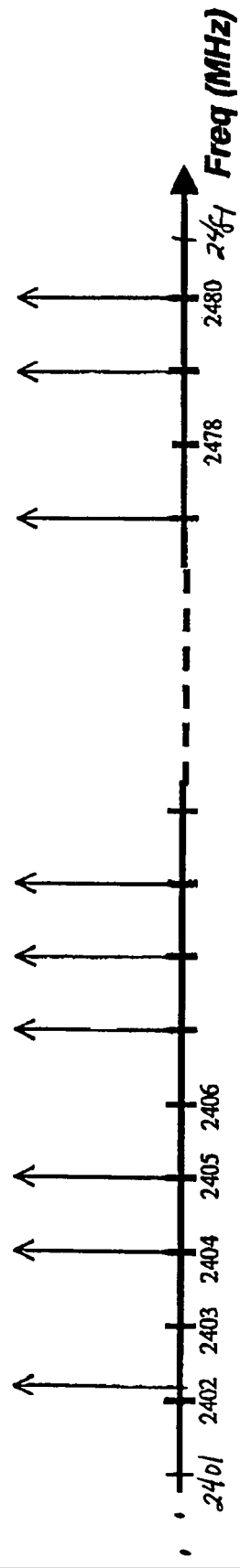
42 Claims, 15 Drawing Sheets

FIGURE 1

FIG. 2(a)

FIG. 2(b)

FIG. 3(a)

FIG. 3(b)

403

phase → | address selector | *401*

Sequence X *403*

| 2405 |
| 2455 |
| 2478 |
| 2412 |
| 2424 |
| (dashed box) |
| 2407 |
| 2465 |

FIG. 4(a)
(PRIOR ART)

phase → | address selector | *401*

Sequence Y *403*

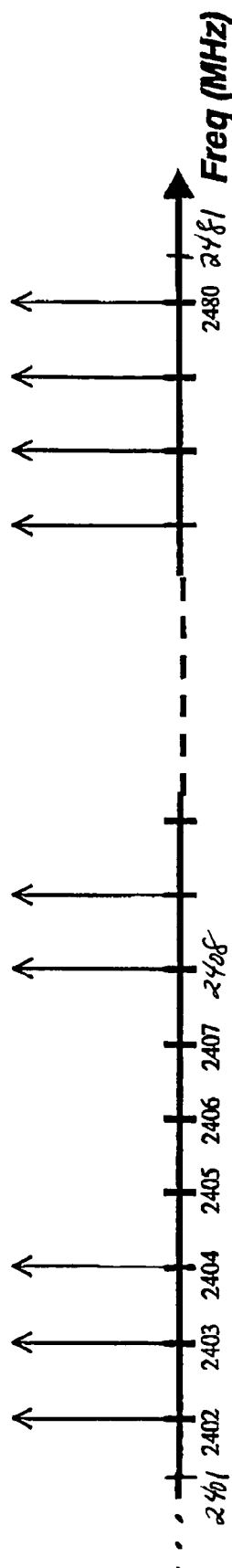| 2405 |
| 2455 |
| 2412 |
| 2424 |
| (dashed box) |
| 2407 |
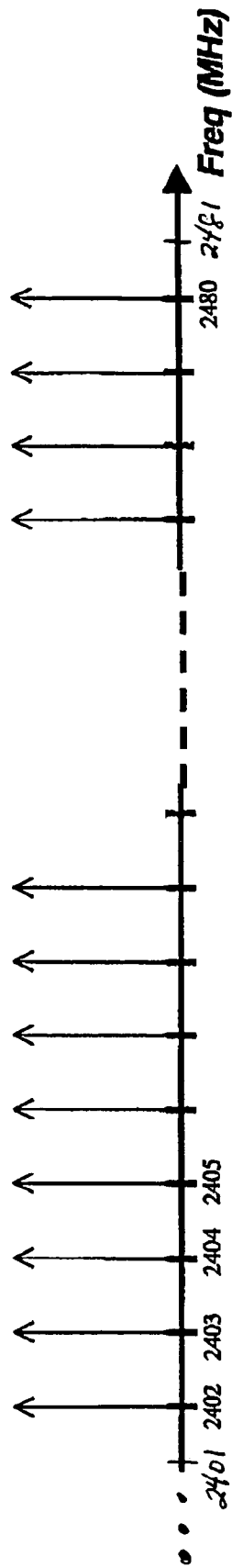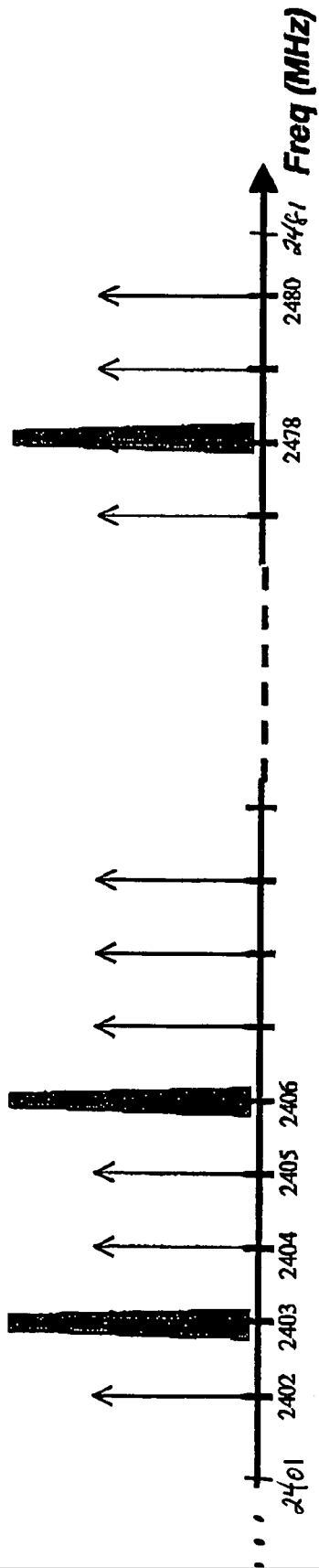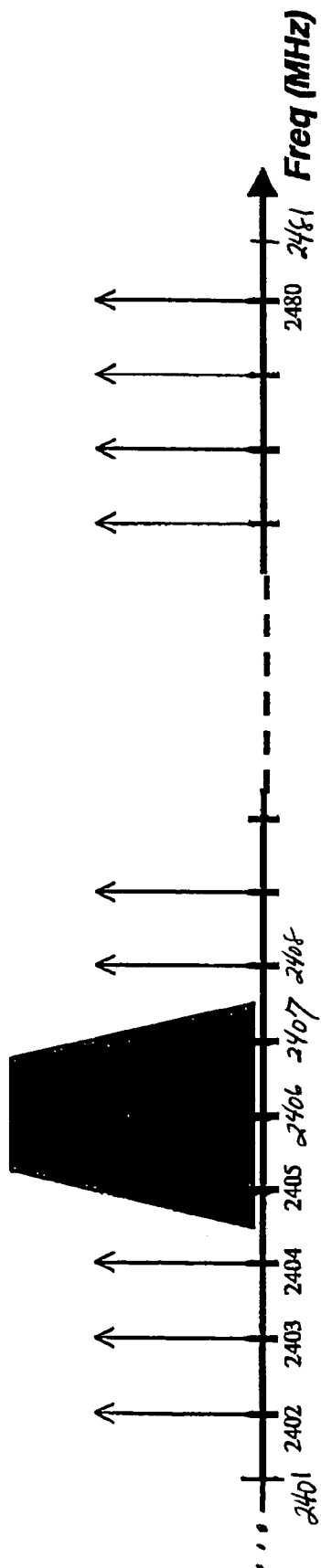
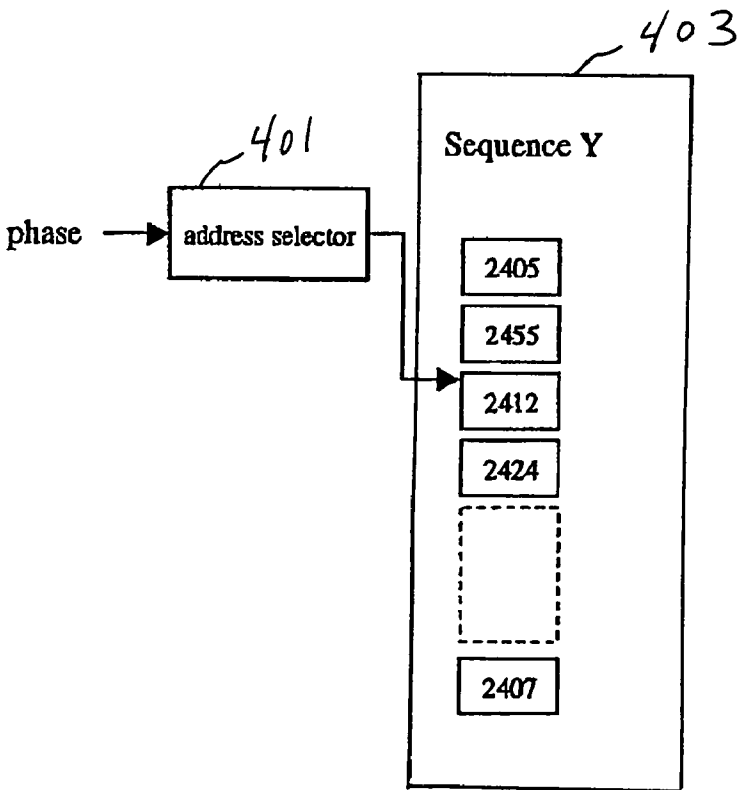FIG. 4(b)
(PRIOR ART)

DOCKET ALARM
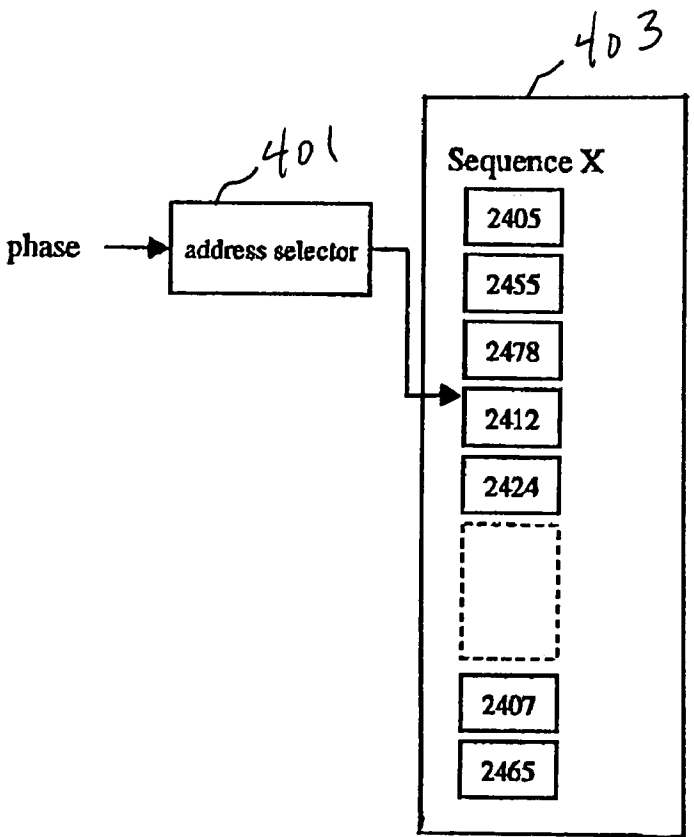
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