ference. Consequently, the scanner device **302** may designate as forbidden, the channel(s) that are adjacent to a hop channel that has been determined, or otherwise designated, a forbidden hop channel. The number of adjacent channels that are designated as forbidden may be determined, for example, by the number of allowable scanning channels, and a minimum number of scanning channels that may required (such as by governmental regulations) for the system and/or may be determined by any known, or detectable, correlation of the interference found on a forbidden channel and adjacent channels.

[**0049**] A list of forbidden channels may also be provided to the scanner device **302** from another communication device, synchronized with a list in another device, such as a pager device, or may be preloaded therein.

[**0050**] Hop selection may be provided by a hop selection circuit **700** as shown in **FIG. 7** according to embodiments of the present invention. The hop selection circuit **700** includes a hop selector circuit **710** and a hop substitution circuit **720**. The hop selector circuit **710** receives an address from which it selects a hop channel sequence from a set of hop channel sequences and receives a clock value from which a phase in the channel sequence is determined. In some embodiments, hop selection by the hop selector circuit **710** may be performed in a manner consistent with conventional FH communication devices, such as Bluetooth. The hop selector circuit **710** outputs a selected hop channel to the hop substitution circuit **720**, where the selected hop channel is compared to a list of forbidden hop channels and, when the selected channel is forbidden a substitute channel is selected. As will be appreciated, the hop selection circuits **700** may be performed within the processor **130** and/or in other separate circuitry.

[**0051**] Example operations for selecting and substituting hop channels according to some embodiments of the present invention are shown in **FIG. 8** and discussed with reference to the channel sequence table shown in **FIG. 6**. At Block **800** a hop channel is elected as a function of the hop sequence and phase within the sequence. For example, when the phase is 3, the selected hop channel is G(3). The selected hop channel is compared to the list of hop channels, **FIG. 6**, and a decision is made at Block **810** whether the selected hop channel is allowed or forbidden.

[**0052**] When allowed, the selected hop channel is used at Block **840** to scan for a paging message. When forbidden, such as determined for G(3), an index to a substitute hop channel is formed at Block **820**. In some embodiments, the index may be provided by the following equation:

$$\text{Index}=(\text{Clock\_Value modulo } N)+\text{Base\_Value},$$

[**0053**] where "Clock_Value" is a clock signal, N is the number of channels in the hop sequence, and Base_Value is related to the first hop channel in the set of hop channels (i.e., 0 for the example sequence in **FIG. 6** of that begins with G(0)).

[**0054**] For example, when the Clock_Value is 37, an index value if formed by (37 modulo 8+0) which is 5. A substitute hop channel is set as the table index value at Block **830**. Whether the substitute hop channel is allowable is checked at Block **810** and, when allowable, is used at Block **840**. Since G(5) is an allowable hop channel, it is used as a substitute channel to scan for a page message. When the substitute hop channel is forbidden, the operations of Blocks **820**-**840** are repeated to select another substitute hop channel.

[**0055**] In other embodiments, the substitute hop channel formed at Block **830** is passed directly to Block **840** for use without returning to Block **810** to check whether it is an allowable or forbidden channel. Those embodiments may be advantageous when a small number of interfering channels may exist relative to the length of the channel sequence and the likelihood of two consecutively selected forbidden substitute channels is sufficiently small.

[**0056**] In other embodiments, at Block **820**, the index value to the substitute hop channel may be formed by a clock value, a random time-varying value, a pseudorandom time-varying value, and/or a non-random time-varying value relative to a designated channel in the sequence of hop channels. In other embodiments, a time-fixed (not changed during a connection establishment operation) mapping between a forbidden hop channel and a substitute hop channel may be provided. However, the randomness of the selection of channels by FH communication devices is often preferred and is sometimes even mandated by governmental regulations. The randomness with which substitute channels may be selected may be related to the relative number of different values used to select substitute channels compared to the number of channels N. For example, if the number of the clock signal values or time-varying values is less than N−1, then certain hop channels will be selected for use as substitute hop channels more frequently than others.

[**0057**] In other embodiments, when the pager device **300** transmits paging messages on a channel train (such as was described earlier), the scanner device **302** may restrict the selection of substitute hop channels to within the channel train. For example, the pager device **300** may scan a portion of the sequence of hop channels used by the scanner device **302** which are about equally distributed ahead-of and behind an estimated phase of the scanner device **302** (e.g., scanning within an A train, 16 of the 32 hop channels). The pager device **300** may transmit the page message on hop channels F(k_est−8), F(k_est−7), . . . , F(k_est−1), F(k_est), F(k_est+1), . . . , F(k_est+7) based on an estimated clock (k_est) of the scanning device **302**. Since k_est changes every scan, so do the contents of the 16-carrier trains. The trains may overlap by one carrier: taking the two trains together, one carrier out of the 32-hop scanning sequence is not present, and one carrier is present twice. The overlap can be a consequence of the pager device **300** changing trains at the same pace as the scanner device **302** changing k_est.

[**0058**] To exploit the train behavior of the pager device **300**, the scanner device **302** may restrict its selection of substitute hop channels (when a selected hop channel is determined to be forbidden) to channels in train A only. For example, when the modulo-32 clock value of the scanner device **302** is k_est, and if the selected channel G(k_est) is forbidden, the substitute channel should ideally be selected from within the allowed frequencies in the train adjacent to G(k_est), from G(k_est −8) to G(k_est+7) excluding all forbidden channels. However, the scanner device **302** does not know which estimate k_est the pager device **300** is using. Thus, k_est is not known by the scanner device **302**, and is the pager device's **300** best guess of the current clock k_scan in the scanner device **302**. The scanner device **302**