This product, Bluetooth Handsfree Car Kit, is a Bluetooth device. The product operates in 2400 to 2483.5 MHz band. The channel is represented by a pseudo-random hopping sequence through the 79 channels. The channel is divided into time slots, with a nominal slot length of 625μs, where each slot corresponds to different RF hop frequencies. The nominal hop rate is 1600 hops/s.

 The control signals and data in the Bluetooth Chipset are modulated and processed and then pass the PA in it. They will be transmitted from ANT to another Bluetooth device. The RF signal from other Bluetooth devices is received via ANT. And they go into the chip. They are magnified by internal LNA in the chip. The power settings and crystal trim are stored in internal flash. The product is powered from a Li-ion battery and uses an integral chip antenna. No external ground is required.

1. FHSS characteristics

The Bluetooth AFH construction (see Fig. 3). Add a group mapping in frequency synchromesh and frequency-hopping sequence generator. This mapping is a self-adjusting frequency selector in fact.

Group mapping construction (see Fig. 4). Select a channel from the groups need to be divided, through PN mapping instrument, select channel mapping to grouping sequence from original frequency-hopping sequence. Enumerates grouping channel content in every channel list according to rising forward sequence.
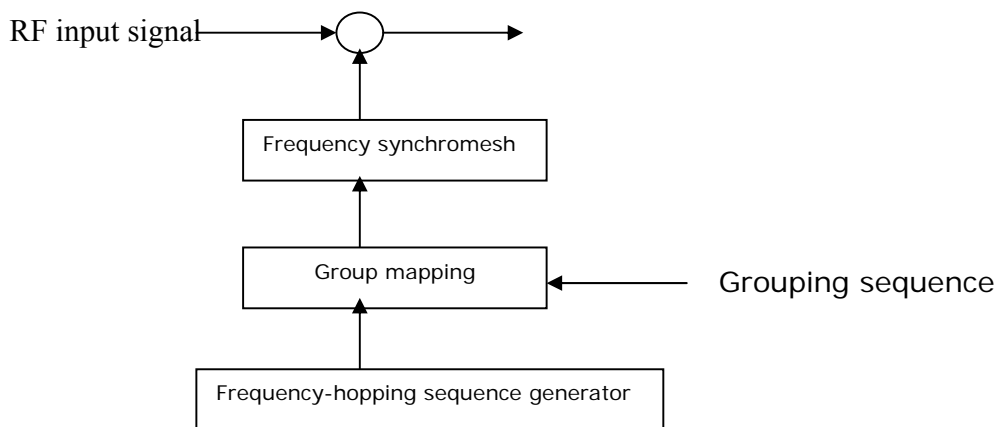

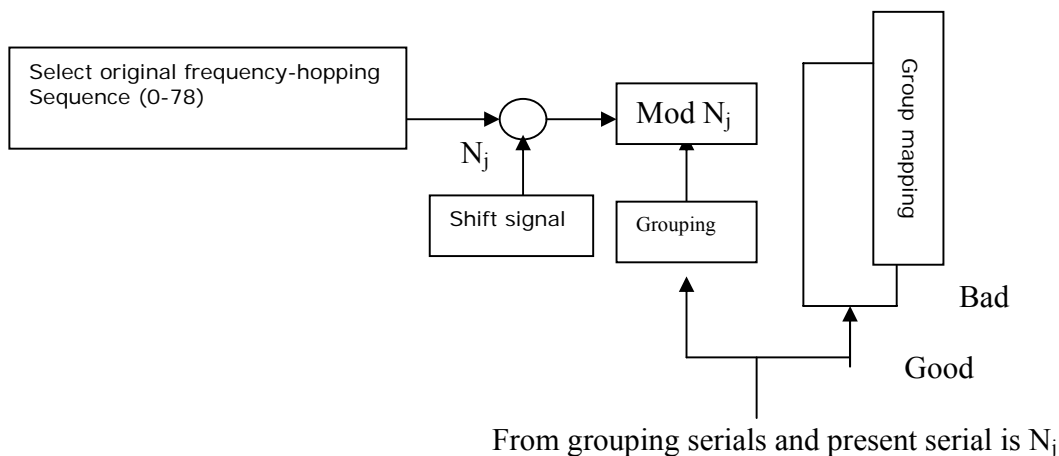Figure 3 Bluetooth AFH Constructions

Figure 4 Group mapping construction

After grouping mapping, average shift signal balanced the channel usage. These shift signal is series counter, every counter indicate a group. The number J group is counting periodically in ｛0，1，2，…，Nj－1｝ scope. Nj is the number J channel number in grouping. The selected grouping counter is counting the next data. And take the data as the shift signal output.

Channel is dynamically separated to 2 kinds of channel in Bluetooth: good channel NG and bad channel NB=79-NG, define N_{min} is the minimum required frequency number required for Bluetooth communication equipment.

Suitable for N_{min} smaller than NG situation. All the frequency spot can be selected in good channel in this situation, as indicated in Fig. 5. When the frequency-hopping generator happens good channel, no new mapping will repeat. When the channel is bad in frequency-hopping sequence, then choose a better channel from a good channel storehouse.

Through these 2 mode, in Bluetooth frequency selector, if the output channel is good, the use it directly; if it is the bad channel, then select frequency in good channel grouping. This selection avoids hit between the output frequency and other disturbing frequency.

3. Equal Hopping Frequency Use

The EUT Complies with the Bluetooth RF specifications, for details refer to Bluetooth standards

4. Receiver input Bandwidth

The receiver bandwidth is equal to to the receiver bandwidth in the 79 hopping channel mode, which is 1MHz, The receiver bandwidth was verified during Bluetooth RF conformance testing.

5. Receiver Hopping Capability

The EUT Complies with the Bluetooth RF specifications, for details refer to Bluetooth standards