Applicant: Zhejiang Dictory Electronic Technology Co., Ltd.
FCC ID: WVRDR01A

Operation Description

Operation Frequency: 2402-2480MHz
Modulation Type: GFSK

This device includes a piece of Bluetooth module, a control board and some external interfaces, such as electric microphone (Mi Head), speaker.
Internal devices work at the voltage of 3.3V which is provided by 3.7V lithium battery.
Bluetooth module which works on 16MHz external oscillator, receives the instructions of buttons, enters into different kinds of work, The data can be transferred with the paired mobile phone through antenna which is printed on the PCB board. The communication can be achieved through electric microphone (Mi Head) and loudspeaker.

The antenna is PCB Layout antenna, no consideration of replacement. There is no external ground connection. The ground is only that of the printed circuit board. Electric current is supplied by a 3.7V lithium battery.

General Specification

Items	Specification
Operation Frequency	2402-2480MHz
Modulation Method	GFSK, 1Mbps, 0.5BT Gaussian
Maximum Data Rate	Asynchronous:723.2kbps/57.6kbps
	Synchronous:433.9kbps/433.9kbps
Hopping	1600hops/sec, 1MHz channel space
Bluetooth Specification	Ver 1.2

1. FHSS characteristics

The Bluetooth AFH construction (see Fig. 1). 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. 2). 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.
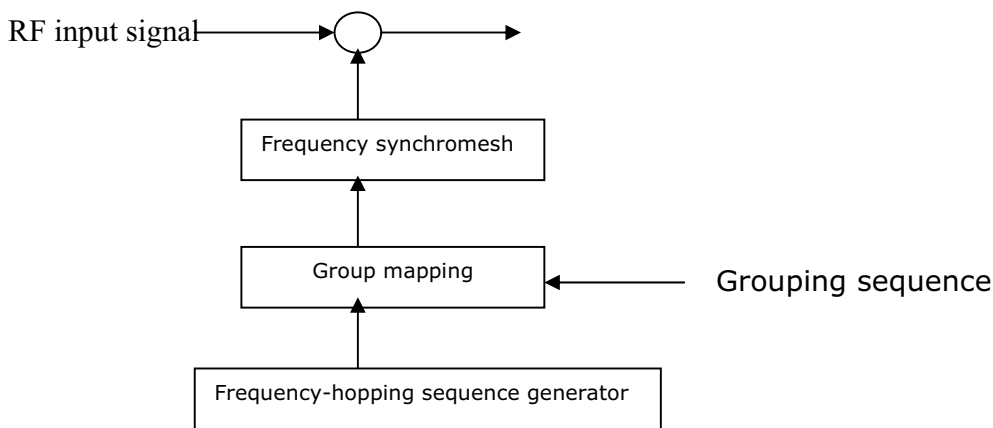

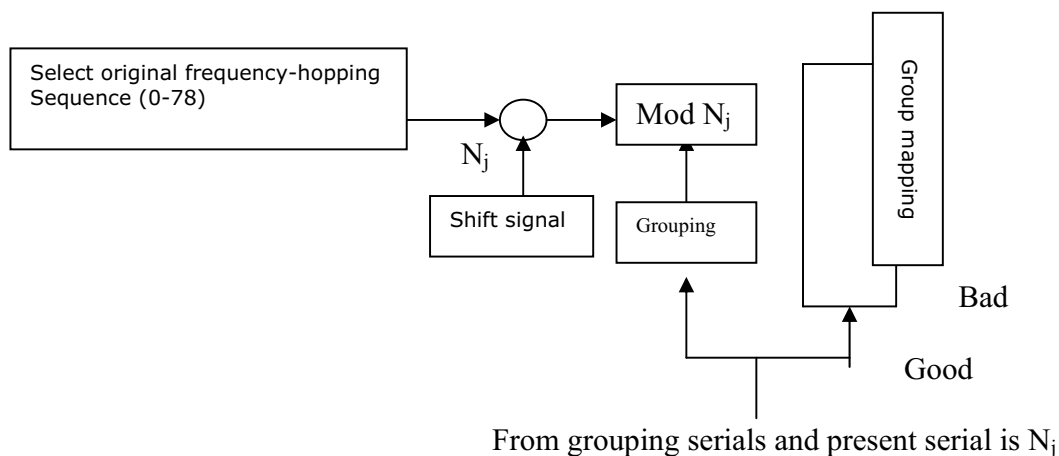Figure 1 Bluetooth AFH Constructions

Figure 2 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, When the frequency-hopping generator happens good channel, no new mapping will repeat. When the channel is bad infrequency-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.

2. Equal Hopping Frequency Use

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

3. 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.

4. Receiver Hopping Capability

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