

Circuit description

The EUT is a Bluetooth module

This is part circuit structure: The encoder IC BK3221(26MHz), it is a single chip radio and based on is for Bluetooth 2.4GHz systems including enhanced data rates(EDR) to 3Mbps; The FLASH W25080B, it is a single chip 8 megabit(1024x8-bit-/512x16-bit) Flash memory, CMOS 3.0 Volt-only. The module Supports Bluetooth v2.1. the Frequency range: 2402-2480MHz.

The working procedures are:

- a. When power on, this device will loop scan the whole frequency until a connection command from the partner is received.
- b. This device transmits a response signal.
- c. The partner receives the response signal and recognizes it, then send a connection command to establish the connection.
- d. each frequency is used equally on the average by each transmitter that each new transmission event begins on the next channel in the hopping sequence after the final channel used in the previous transmission event.
- e. After the connection establish successfully, the data transmission is beginning. At the same time, the partner and this device will shift frequencies in synchronization per a same pseudo randomly ordered list of hopping frequencies, the hopping rate is 1600 times per second. This device conform to the criteria in FCC Public Notice DA00-705.
- f. The bandwidth of the this device, which is set to a fixed width by the software, match the hopping channel bandwidth of their corresponding partner. This device is a true frequency hopping system and does not have the capability to be coordinated with other FHSS systems in an effort to avoid the simultaneous occupancy of individual hopping frequencies by multiple transmitters. There are 79 channels in total. The channels hopping from one channel to another channel during the pseudorandom selection process. The hopping interval is 12 millisecond. This system frequency hops between 79 channels. If it is determined that one of the 79 hopping channels is found to be noisy or poor due to other RF interference, then a new channel is selected from the 78 unused channels and the one noisy channel is released to the unused group. This repeats whenever a noisy or poor channel is detected. For example, for the hop pattern of 2414MHz, 2434MHz, 2444MHz, 2434MHz, 2451MHz, 2441MHz, 2454MHz, 2434MHz, 2427MHz, 2461MHz, 2461MHz, 2444MHz, 2414MHz, 2448MHz, 2451MHz, 2417MHz, 2478MHz, 2469MHz, 2473MHz, 2403MHz, etc. The sequential hops can not follow any order, is completely random.