

## Frequency

### 1. Wireless radio frequency unit

The antenna emissive power in bluetooth system conforms to the ISM wave band request in FCC. As adopting the wide frequency technology, the emissive power may increase to 100m. The system maximum frequency-hopping speed is 1600leap/second. Between 2.402GHz and 2.480GHz, It adopts 79 frequency spots like 1MHz. The system designing distance is from 0.1m to 10m, if increasing emissive power, the distance can be increased to 100 m .

### 2.Multi-Address Access System and Modulation Way:

The reason to choose the special multi-address access system is there is still no uniform criterion on the ISM frequency segment. The advantage of frequency divided multi-address(FDMA) is the orthogonality of the channel relies only on the accuracy of transmitting end crystal oscillator. Together with the self-adaptation or dynamic channel distribution structure, it can avoid interference. But single FDMA is not able to meet the need of the frequency expansion within the ISM frequency segment. The channel orthogonal of the Time divided multi-address (TDMA) needs strict time synchronization. It's very difficult to maintain the same time reference in the multi-user system connection. Code divided multi-address (CDMA) is able to implement frequency expansion. It's use on the unsymmetrical system optimize the special system. Because of the Far & Near domino effect, direct sequence(DS) CDMA needs consistent power control and extra plus. The same as TDMA, the channel orthogonal needs the same time reference. Along with the number of the use, higher chipset speed, wider bandwidth(interference prevention) and more electrocircuit consumption are needed. The frequency-hopping FH) CDMA combines kinds of advantages of special wireless systems. The frequency of the signal is able to be expanded to a wide range so that the effect of the narrowband interference become very small. The frequency-hopping carrier is an orthogonal. The contiguous. interference can be restrained effectively by filtering wave. The narrowband and interrupt caused by interference among users may rely on the high-level protocol to solve. On the ISM frequency segment, the signal bandwidth of FH system is limited within 1MHz. In order to enhance the robustness of the system, the Binary modulation structure is chosen. As a result of the bandwidth limitation, the data speed is lower than 1Mb/s. In order to support sudden data transmission, the best way is to use the non-demodulation examination. The bluetooth technology uses the Gaussian frequency-shift keying (GFSK) to modulate, the coefficient of modulation is 0.3. The logic "1" transmits the positive frequency leaning, the logic "0" transmits the negative frequency leaning. Demodulation can be carried out by the discriminator with FM limitation.