

8 ~~Baseband~~ GENERAL DESCRIPTION

Bluetooth is a short-range radio link intended to ~~be a cable replacement between~~ replace the cable(s) connecting portable and/or fixed electronic devices. Key features are robustness, low complexity, low power, and low cost.

Bluetooth operates in the unlicensed ISM band at 2.4 GHz. A frequency hop transceiver is applied to combat interference and fading. A shaped, binary FM modulation is applied to minimize transceiver complexity. The symbol rate is 1 Ms/s. A slotted channel is applied with a nominal slot length of 625 μ s. For full duplex transmission, a Time-Division Duplex (TDD) scheme is used. On the channel, information is exchanged through packets. Each packet is transmitted on a different hop frequency. A packet nominally covers a single slot, but can be extended to cover up to five slots.

The Bluetooth protocol uses a combination of circuit and packet switching. Slots can be reserved for synchronous packets. Bluetooth can support an asynchronous data channel, up to three simultaneous synchronous voice channels, or a channel which simultaneously supports asynchronous data and synchronous voice. Each voice channel supports a 64 kb/s synchronous (voice) channel in each direction. The asynchronous channel can support maximal ~~721~~ 723.2 kb/s asymmetric (and still up to 57.6 kb/s in the return direction), or ~~432~~ 433.6 kb/s symmetric.

The Bluetooth system consists of a radio unit (see ~~Radio Specification~~ Physical Layer (PHY)), a link control unit, and a support unit for link management and host terminal interface functions, see ~~Figure 3 on page 24~~ Figure 8.1 on page 54. The current document describes the specifications of the Bluetooth link ~~controller~~ controller, which carries out the baseband protocols and other low-level link routines. Link layer messages for link set-up and control are defined in the ~~Link Manager Protocol~~ Link Manager Protocol on ~~page 185~~ page 257.