Wireless Gamepad for XBOX

Theory of Operation

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The radio system is mainly composed of three parts: radio modem, frequency synthesizer and baseband microprocessor.. The packetized frame is transmitted to the wireless gamepad. When gamepad replies, this radio receives the data, un-packetize it. The radio modem is a FSK modem running at 250 kbps with GFSK encoding to avoid frequency drifting. Frequency is controlled by a frequency synthesizer which adjusts a voltage-controlled RF oscillator dynamically for accurate frequency management. A total of 79 channels can be selected conversing the frequency range of 2.402 – 2.480GHz. The antenna is an embedded PCB antenna matching is done by using lumped inductors and capacitors. The radio is a half-duplex system and powered by 4-AAA size batteries. The total average power consumption of the radio system is about 25 mA at 3.3V.