PS3 Wireless Guitar

Operation Principle

2008-6-16

1. Controller Side Radio

The radio system is mainly composed of three parts: radio modem, frequency synthesizer and baseband microprocessor. The radio modem is a MSK modem running at 250 kbps. The antenna is an embedded PCB antenna matching is done by using lumped inductors and capacitors.

The microcontroller scans keystrokes on the joypad, then packs the data by adding preambles, frame information, and error checking bytes. The radio system uses one of 75 channels (the frequency range is 2.410-2.470GHz) to send signal in random, and the channels change frequency is 62.5HZ per second.

The Guitar radio is powered by 2-AAA side batteries and regulated to 3.0V. The power consumption of RF module is about 4mA, the total power consumption of the Guitar side radio system is about 8mA in normal working mode. It will enter sleep mode if no key be pressed after 5 minutes, in this mode the total power consumption of Guitar is only about 40uA*.

2. Station Side Radio

Station side radio will always send RF signal at intervals, and it also receives, unpacks, and sends the data to playstation2 Console.

Station side radio system will send sync packets after being powered on, and then search Guitar's responses. This is search mode. If any responses-packets be received, the Station side radio system will enter normal working mode. Then, if station side radio system loses synchronization, it will enter search mode.

Station side radio system is powered by console (5V(USB)), power consumption is about 12 mA in normal working mode.