Wireless Ethernet Bridge   FCC ID: DZLG65149A

Operational Description

The Wireless Ethernet Bridge requires two mated units of identical hardware to form a complete system, where one unit is defined as the master and one as the slave. The system is wireless Ethernet bridge to route Ethernet packets wirelessly between two points.

An Ethernet packet is received by one of the Wireless Ethernet Bridge units. It is then converted into multiple packets to be transmitted to the mated unit. The mate then converts the multiple packets back into an Ethernet packet and transmits it on the Ethernet bus.

Transmitter Operation

There are two operating modes, connected and not connected. When the system is not connected, the master chooses a channel in the 900MHz ISM band and sends three small packets. If the slave does not respond then the master chooses another channel in the 900MHz ISM band and tries again.

When the system is connected the transmitter resides on one channel in the 900MHz ISM band. It sends a small packet to its mate and waits for a response. When there is Ethernet data to be transmitted the transmitter notifies its mate and then sends the data.

RF Section

- The Transceiver IC is a fully integrated Low IF Radio Transceiver which uses Gaussian FSK Modulation

XInC Microcontroller

- The XInC Microcontroller is a parallel processor that controls the data flow from one unit to its partner unit.

EEPROM

- The EEPROM holds the Firmware image file that is extracted via serial interface at start up by the XInC Microcontroller.

50MHz Crystal

- The 50MHz Crystal is a 3rd overtone resonant crystal that is driven by the XInC Microcontroller.

FPGA Interface

- The FPGA Interface provides an interface between the XInC Microcontroller and the Ethernet PHY.
- The FPGA Interface also provides clock signals for the Ethernet PHY and RF Section.

Ethernet PHY

- The Ethernet PHY is an Ethernet physical layer device that handles link control and data conversion from/to a Manchester Encoded twisted pair signal to a 4 – bit parallel data stream.

Ethernet Transformer

- The Ethernet transformer is a 1:1 isolation transformer for the Ethernet twisted pair signals.

RJ-45 Jack

- The RJ-45 Jack is the physical 8 pin connector to which a CAT5 twisted pair cable is connected to the unit.

Power Jack

- The Power Jack is where the unregulated DC power signal is applied to the unit.
- The Power Jack is center positive.

3.3v Regulator

- The 3.3v Regulator creates a uniform 3.3v DC power signal from the unregulated DC power signal of the Power Jack.