Circuit Description and Bridge Radio Operation

The BR1200 radio provides two-way wireless link between two or more wired LANs, such as Ethernet, that are separated by up to 20 miles.   The heart of the device is a 2.4 GHz direct sequence spread spectrum (DSSS) transceiver operating in the unlicensed ISM frequency bank. This transceiver is configured as shown in the WL201 PC Card Block Diagram that has already been FCC certified (FCC #: MXF-WL201).   Based on the Harris Corp. reference design this radio includes TX/RX switch and power amplifier, followed by RF/IF converter, Q Modem, and baseband processing.

The PC Card is installed onto a computer motherboard using an ELAN400 66MHz processor, much in the same way as it might be used when installed in a notebook computer. The assembly is further configured with a suitable power supply and placed in the rear of a sealed patch antenna array manufactured by M/A-Com. Together with a sealing gasket, the rear cover that includes connections for data, prime power, and grounding, is finally attached.

The BR1200 has some special LAN features that can be adjusted by a trained installer. Most of these features are optional and all default to a useful value "out of the box". None of these features control the RF output power. The LAN features of the radio comply with the IEEE802.11 standard that has been developed through the standards work of the Institute of Electronic and Electrical Engineers (IEEE).

The BR1200 is readily attached to a suitable mast on the side or top of a structure such as industrial building, tower, etc.   The antenna option is properly aimed in the direction of the other BR1200 it is trying to communicate with.   LAN data cable and prime power cable is connected to the BR1200. The ground strap provided is connected to an appropriate ground.   During normal operation, the radio is on constantly and awaits data packets to be sent to another radio of the same kind.

The other end of the LAN cable is connected to a HUB associated with a given LAN using a Category 5 cable supplied with weatherproof connectors. When power is applied the unit immediately is recognized and begins transmission of data packets per the IEEE802.11 standard.

Software Protection

The BR1200 software is designed only to accept the PCMCIA radio card that has been certified with this radio. All other cards will not function since it will not be recognized by the software setup string.

Frequency Channels

The BR1200 operated in the 2.4 to 2.48 GHz range. In the USA there are 11 frequency bands which the system can operate.   Typical installation would be between two radios set to the same channel, however, it is possible to operate into additional radios by setting their ESSID (Extended Service Set ID) to different channels.