ViperSC 100 MHz Viper VHF Transceiver/Modem Cover Letter

FCC ID – NP4-5018-500

Introduction

The Viper modem-controller performs the base-band signal processing & the user data interfacing for the Viper product. For the sake of the clarity of this circuit description, the circuit can be divided in four sections: the basic controller section, the DSP section, the power supply section.

The RF Board is controlled by the modem. The RF board contains both a transmitter and receiver that interface with the modem controller using digital I & Q baseband signals. The transmitter and receiver are capable of operation from 136-174 MHz but are intended for use from 136-174 MHz.

The ViperSC is user programmable using web based programming software that resides in Power PC on the modem. The software is used for programming the modem options, RF frequencies, IF bandwidth, and transmitter power. The transmitter is programmable from 1.0 to 12.0 Watts in 0.10 Watt increments.

The ViperSC is intended to be used in a professional installation. It is the responsibility of the licensee and the professional installer to properly install and program the device and to comply with governing regulatory body rules and regulations.

Product Overview

Viper SC provides any IP-enabled device with connectivity to transmit data. This DSP-based radio was designed for industrial applications. Operational as a wideband IP Modem or Router, Viper SC is optimized for use in SmartGrid, Distribution Automation, and SCADA applications. SCADA applications are defined as those with one or more centralized control sites used to monitor and control remote field devices over wide areas. For example, a regional utility may monitor and control networks over an entire metropolitan area. Industry sectors with SCADA systems include energy utilities, water and wastewater utilities, and environmental groups.

Designed to replace wire lines, the Ethernet and RS-232 serial ports allow direct connection to Programmable Logic Controllers (PLCs) or Remote Terminal Units (RTUs). The ViperSC supports serial and Ethernet/IP Remote Terminal Units (RTU) and programmable logic controllers (PLC). It is standard IEEE 802.3 compliant . The ViperSC supports any protocol running over IPv4 (including ICMP, IPinIP, IPSec, RSVP, TCP and UDP protocols). It provides MAC layer bridging and HTTP, ARP, and static routing packet forwarding.

By design, the max the transmitter can be operating is dependent on the largest packet sent to the DSP by the PPC which is 1600 bytes

MAC header	= 22	bytes
OIP header	= 2	bytes
Ethernet header with VLAN	= 18	bytes
IP	= 1500	bytes
OIP encryption	= 16	bytes
OIP tag	= 2	bytes
ODM V3	= 38	bytes

The slowest speed is 4 Kbps. 1600 bytes at 4 Kbps = max 3.2 seconds transmission before returning to receive mode.