Operational Description

**Overall Description**

Verizon One is an interactive device utilizing the power of PSTN and Broadband to deliver a feature rich and customer friendly service. This device will have all the standard features of a regular phone (Cordless Handset operating in the 5.8 GHz range , CID display, speakerphone, mute button, etc.) as well as an LCD display, and an integrated DSL modem and 802.11 WIFI router (to support connectivity to WiFi enabled devices throughout the home).

On top of the normal phone features, this device will deliver a suite of services via the LCD screen, including

- o Proactive communications to guide DSL installation
- o Access to online Address Book with ability to touch the screen and automatically dial a number
- o Access to an online Calendar
- o Email notification w/ header information
- o Online Directory Searches – yellow and white page searches
- o CallerID log and ability to incorporate this information into an online Address Book
- o Real time call management
- o Schedule and manage call forwarding events,
- o Visual voice mail log, including name, number and time of message,
- o Instant access to information services like weather, news, stock quotes, movie listings, etc.

WMG2400   A2 CIRCUIT DESCRIPTION
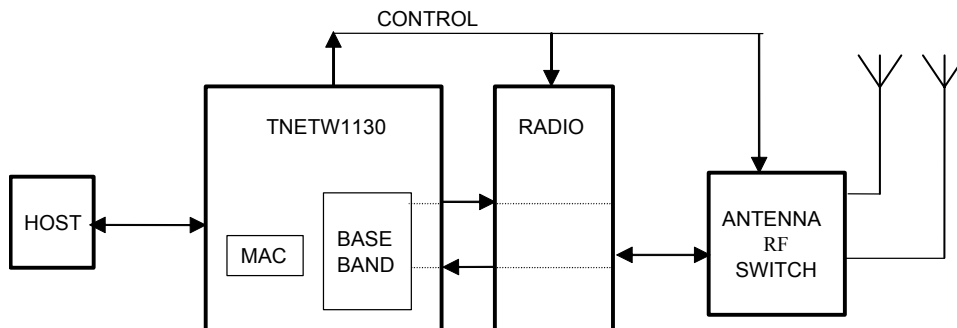
MAC (Media Access Control) Unit with Baseband Process Unit (U1)

The TNETW1130 MAC implements the IEEE Std 802.11 MAC sublayer using both dedicated hardware and embedded firmware. The MAC hardware implements real-time functions, including access protocol management, encryption, decryption, and direct memory access (DMA) transferring of data between the baseband processor and the host. The eCPU runs firmware that manages the flow of commands and data to/from the host, performs scan-and-join operations, and maintains TX and RX queues, as well as a WEP key table stored in internal RAM. The eCPU can override many of the MAC functions that are performed automatically by hardware during normal operation.

The baseband processor includes two primary interfaces: radio and MAC. The radio interface provides analog differential signals for transmitting and receiving data by means of 2.4-GHz or 5-GHz radios. The radio interface also includes programmable RX AGC, TX power control, and antenna diversity. The MAC interface ensures that decoded and descrambled RX data is transferred to the MAC for further processing. The MAC interface also allows the MAC to transfer MAC protocol data units (MPDUs) to the baseband processor for encoding and transmission. The baseband processor provides a serial interface through which the MAC accesses registers within the baseband processor core. The baseband processor also provides CCA information to the MAC.

RC2422B RF Transceiver Dual-Mode 802.11b/g IQ/IF Transceiver with Dual VCO Synthesizers(U8)

The RC2422 is a fully integrated IQ transceiver specifically for use in 802.11 b/g applications. The RC2422 is designed to perform the IQ conversion at 374MHz IF as well as provide an RFLO and control logic to the RFFE (Radio Frequency Front End). The RC2422 also has an internal IQ DC offset calibration function for the receive IQ interface. Combined with the Radia integrated RFFE, the RC2422 completes the Radia WLAN two-chip radio.
The RC2422 incorporates all of the system blocks from the modem to the RFFE except for the IF filtering and the reference crystal. The ASIC uniquely incorporates an internal PLL reference oscillator where only a crystal is needed, and also provides a clock output for base-band/MAC ASICs. RC2422 includes two synthesizers with VCOs, IQ modulator, IQ demodulator, anti aliasing filters, IF amplifiers, receive AGC circuit, transmit power control and serial interface.

RC2326 Dual-Mode 802.11b/g RFFE ISM band(U2)

The RC2321 is a fully integrated Dual Mode Radio Frequency Front End (RFFE) designed specifically for use in 802.11 b/g applications. The RC2321 is designed to perform RF up and down conversions in the unlicensed ISM band. Combined with the Radia RC2422 IF/IQ Tranceiver/Synthesizer, The RC2326 completes the Radia WLAN two-chip radio.
The RC2321 incorporates all of the RF blocks for both the "b/g" band except for low cost ceramic filters. The ASIC includes the LNA, PA, mixer, bias circuitry, RX gain control, transmit coupler detector, and

T/R switches. High integration and internal RF matching enhances performance and greatly reduce external part count. The only external needed for operation are RF filters and external low power DC switching   FETs.

Power Regulator(U5,U10,U15)

Mini PCI Connector		802.11 Subsystem Supplies	
D3.3V		D3.3V	Digital supply for the TNETW1130 I/O
	Filter	A3.3V	Analog supply for Radio components
	LDO Regulator(U5)	A2.85V	Analog supply for the TNETW1130
	Transistor Dropout	A1.5V	Analog supply for the TNETW1130
	LDO Regulator(U10)	A1.8V	Analog supply for the TNETW1130
	LDO Regulator(U15)	D1.5V	Digital supply for the TNETW1130 core