OPERATIONAL DESCRIPTION

GSM Function Description (850/1900)

The GSM receiving path includes LNA, an RF band pass filter. The receiver IC down-converts the received signal from RF to baseband using ZIF techniques. The analog baseband signal is processed by baseband processor (UE910-NAD).

The GSM transmitting path consists of a transmitter, two power amplifiers, front end module (FEM), diplexer, duplexer and switch. Beginning with analog baseband signal out from baseband processor (UE910-NAD), the transmitter up-converts the baseband signal directly to RF signal by modulating with an internal LO which is generated by Phase Locked Loop (PLL) circuit.

The PLL circuit which is in WTR 1605L consists of a VCO, a frequency synthesizer, a loop filter, and a reference frequency oscillator. The TX up mixer is incorporated in the transmitter (UE910-NAD). After modulation in transmitter, the RF enters into the power amplifier circuit.

WCDMA Function Description (B2 /B5)

The UMTS receiving path includes LNA, an RF band pass filter. The receiver IC down-converts the received signal from RF to baseband using ZIF techniques. The analog baseband signal is processed by baseband processor (UE910-NAD).

The UMTS transmitting path consists of a transmitter, two power amplifiers (PA with HSPA capability), front end module (FEM), diplexer, duplexer and switch. Beginning with analog baseband signal out from baseband processor (UE910-NAD), the transmitter up-converts the baseband signal directly to RF signal by modulating with an internal LO which is generated by Phase Locked Loop (PLL) circuit.

The PLL circuit which is in WTR 1605L consists of a VCO, a frequency synthesizer, a loop filter, and a reference frequency oscillator. The TX up mixer is incorporated in the transmitter (UE910-NAD). After modulation in transmitter, the RF enters into the power amplifier circuit.

Bluetooth Function Description

The Bluetooth transceiver includes PLL, VCO, LNA, PA, modulator and demodulator. The Bluetooth baseband signal processor incorporates hardware engines performs frequency hopping, error correcting, whitening, encrypting, data packet assembling and de-assembling. Bluetooth function is fully compliant with Bluetooth specification 4.1. Bluetooth basic rate use GFSK modulation, where an instantaneous data rate of 1 Mbit/s is possible. Bluetooth Enhanced Data Rate (EDR) adopts π/4-DPSK and 8DPSK schemes, each with 2 and 3 Mbits/s respectively.
Dipole type antenna with 2dBi gain is used for this function.

NFC Function Description

For NFC operation, devices communicate using near filed EM wave with 13.56 MHz based on NFC pattern coupling. The modulation is ASK and its transmission data rate can be set as 106Mbps, 424Mbps, 848 Mbps for different types of standards. After enabling NFC function, the device will keep polling signal periodically until it receives response from the other card. There are three roles for NFC, that are reader mode, card mode, and peer-to-peer mode. Those functions make transaction, data exchange done contactless in the close proximity.