Operational Description

Model Name : CAVA100

GSM Functional Descriptions

Radio

The radio consists of the following four blocks: antenna interface, receiver, transmitter, and synthesizer.

Antenna Interface

The antenna interface includes the T/R switch, antenna band pass filter, and Balun network.. The controlled impedance requirement is a short length of 50-ohm transmission line from the module to the antenna. No external impedance matching or Balun circuits are required.

Receiver

The first stage of the receiver uses a direct-conversion architecture with high-selectivity, integrated, low-pass IF filters and relatively low gain. This is followed by an up conversion to a low IF frequency where a single processing path is used to amplify the IF signal to the desired level. By using a low IF for the second stage, high-gain amplifiers may be used without concerns for DC offset or gain and phase matching. This results in a receiver that achieves very high selectivity with low filter complexity. It does not suffer from degraded selectivity at the image frequency and achieves lower overall power consumption.

Transmitter

The transmitter is comprised of two primary functional blocks: the IF section and PA/Up-converter. The IF section converts the digital signal to analog and performs signal conditioning to ensure the spectral emission requirements are satisfied. The analog signal is directly up-converted and amplified. The output of the PA is multiplexed with the receiver in the antenna interface block. A power control interface is provided to support external amplification for Class 1 operation.

PLL Synthesizer

The PLL synthesizer phase locks an integrated voltage-controlled oscillator to a 19.2 MHz external crystal reference. The PLL synthesizer, including loop filter, is fully integrated and no additional external components are required.

WCDMA Functional Descriptions

The UMTS receive path includes an LNA, an RF bandpass filter, and an receiver IC that downconverts the received signal directly from RF to baseband using ZIF techniques. The analog baseband signal is processed by baseband device. The dual-band (UMTS850 and UMTS2100/1900) UMTS transmit paths consist of an transceiver device, 3 RF bandpass filters, 3 UMTS power amplifiers (PA with HSDPA capability), and 3 isolators for low-band and high-band operation. Beginning with analog baseband signals from the device, the device directly translates the baseband signals to an RF signal with an internal LO generated by integrated on-chip PLL and VCO. The transceiver output driver stages deliver fairly high-level RF signals that are filtered and amplified by the UMTS PA. The low-band and high-band UMTS PA outputs are protected by the isolators and routed to the antenna through the low-band and high-band duplexers and the antenna switch module. In the GSM receive path, the received RF signals are applied through their bandpass filters and downconverted directly to baseband in the same transceiver IC. Shared with the UMTS receiver baseband interface, the GSM analog baseband outputs are then routed to the baseband IC for further processing.

Bluetooth Operation Of Description

EUT is a Pocket PC Phone that built in Bluetooth with 79 channels. The transmission speed of this device is 1Mbps. The modulation is GFSK. The device adopts Frequency Hopping Spread Spectrum technology (FHSS). The antenna is **Printed Antenna**, and there is no external antenna connector.

When you enable the application program of Bluetooth, many wireless applications will become possible, such as:Communicate with each other wirelessly (between embedded systems, laptops, PCs, and others), including sharing or exchanges of data (i.e. wireless file transfers between bluetooth-enabled devices).

WLAN Description of Operation

EUT is a Smart Phone that built in IEEE 802.11b/g standard compliant Wireless LAN adapter with 14 channels from frequency range of 2412 to 2484MHz. While operating in infrastructure and Ad-hoc modes, it can access to a wireless network to share resources, such as files or printers without being bound to network cables. Compatible with 802.11b, EUT provides dynamic data rates of 1, 2, 5.5 and 11Mbps. The modulation techniques are DBPSK, DQPSK, and CCK based on direct sequence spread spectrum (DSSS). Compatible with 802.11g, EUT provides dynamic data rates of 6, 9, 12, 18, 24, 36, 48, and 54Mbps. The modulation techniques are BPSK, QPSK, 16-QAM, and 64-QAM based on orthogonal frequency-division multiplexing (OFDM).

EUT's WLAN adopts a pifa-type antenna with ability in a long-distance transmission complying with FCC Part 15 and ETSI/CE certifications within 2.4GHz ISM band. For network security, Wi-Fi Protected

Access (WPA) feature and 64/128-bit Wired Equivalent Protection (WEP) data encryption are supported. In addition, its standard compliance ensures communicating in any 802.11b/g network with maximum reliability, throughput and connectivity by automatic data rate switching.