

OPERATIONAL DESCRIPTION

The equipment under test (EUT) is the transmitter, a GSM/GPRS Quad-band (850/900/1800/1900) mobile phone. It supports GPRS class 12, BT3.0 And FM 88MHz-108MHz (Rx only). The transmitter operates in a half-duplex system according to the GSM standards.

Radio Frequency unit

The radio-unit consists of all receiver, transmitter and high frequency generation and receives sections of the hardware.

It represents the transition to the air-interface, the Radio-link between the GSM base station and the mobile terminal.

Transmit Module

This building block separate and switch the radio frequency signal from the receive/transmit antenna connector via an Antenna Switch Filter into the receiver and transmit part as well as a separation into the two receive bands and transmit high and low band. For each of the two receives chains the corresponding SAW-filter prevents high level out-of band signals to the following receive low noise amplifiers (LNA). To realize a full quad-band application for the receive chain, with respect to the direct conversion receive inputs of the MT6260D transceiver, a circuitry combines the quad band receive chains for GSM850, EGSM900, DCS, and PCS into transceiver. For the transmit part, the PA with 50Ohm impedances at all RF input and output ports. The power amplifier (PA) blocks including power control are combined with the low insertion loss quad-band PHEMT switch.

The PA is switched via the radio control signal from LB into HB frequency range. The RF input power coming from the transceiver is set on a constant level. The PA output power is controlled via the level of the analog control voltage RAMP. This control input voltage RAMP for controlling the output power as well as the GSM confirms up- and down-ramping is generated by the BB-unit.

Baseband unit

Baseband unit is composed of baseband and memory. Baseband chip uses MT6260D which is an advanced Single Chip Baseband Processor incorporating all digital, analog. It consists of DSP, MCU, digital interface and receiver. It presents versatile GPIO and GPO to control LCD, SIM card, to provide JTAG signal, LCD and keyboard backlight controller, and USC interface.

Memory uses GIGADEVICE /FLASH, which consists mainly of the combined memory chip, FLASH into one single IC package. MT6260D provides 1.8V supply for the memory chip.

Transceiver

This building block consists mainly of the transceiver chip MT6260D, which is a highly-integrated RF Transceiver IC for the GSM/GPRS 850/900/1800//1900 cellular systems

The receiver section of MT6260D includes Quad-band Low-Noise Amplifiers (LNAs), RF quadrature mixers, channel filters, Programmable-Gain Amplifiers (PGAs), and on-chip automatic DC-offset correction loops. The differential inputs are matched to external SAW filters.

MT6260 is a monolithic chip integrating leading edge power management unit, analog baseband and radio circuitry based on the low-power CMOS process. MT6260D is a feature-rich and extremely powerful single-chip solution for high-end GSM/GPRS capability.

Peripherals

Display: serial interface TFT LCD with 220*176, 6.5K TFT.

ESD: providing ESD protection for microphone interface, system connector signal interface, SIM card interface and keyboard signal.

BT/FM:

MT6260D also supports FM and 3.0 version of BT. FM only RX function. For Bluetooth, It processes with the GFSK, $\pi/4$ -DQPSK, or 8DPSK modulation in both directions. The antenna is a Monopole type.

Mechanical Architecture

The graph shows connection of PCB and mechanical frame. Following the main building and blocks are indicated.

Software Architecture

Handset based on the Nucleus operating system. Software architecture consists of alignment, message, timer, memory management and so on.