

## **General Technical Description**

**Model: F8**

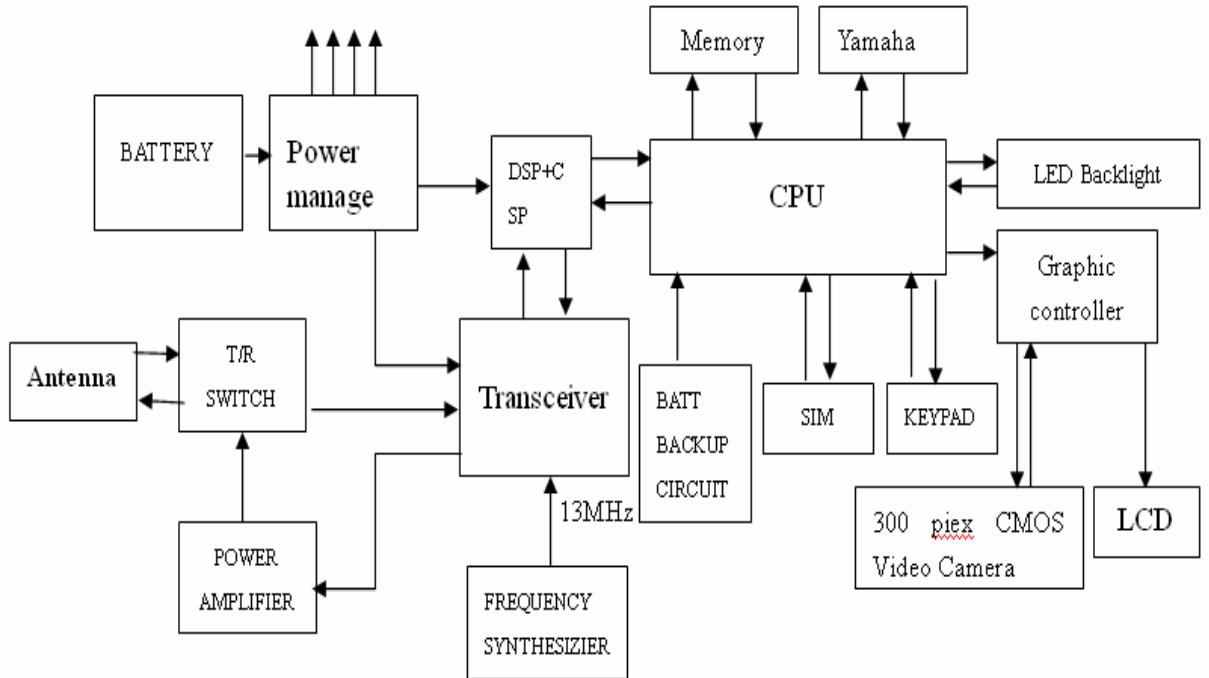
**Date: 2005-2-21**

**Band: EGSM900, DCS1800, PCS 1900**

## 1. Scope

This document is shown and provided the more detail information about the platform used in. The basic description for the Baseband and RF section are also included.

## 2. Detail Block Diagram



## 3. RF Front End

RF Front architecture is based on AGERE's Carbon highly integrated solution and comprise mainly chips:

### 3.1 SI4206BM Transceiver with Direct Conversion

The SI4206BM supports EGSM900, DCS1800, and PCS 1900 application.

The Aero I+ transceiver is a complete RF front end for multi-band GSM and GPRS wireless communications. The transmit section interfaces between the baseband processor and the power amplifier. The receive section interfaces between the RF band-select SAW filters and the baseband processor. All sensitive components, such as RF/IF VCOs, loop filters, and tuning inductors, are completely integrated into a single compact package. The Aero I+ includes a digitally-controlled crystal oscillator (DCXO) function and completely integrates the reference oscillator and varactor.

### 3.2 CX77312 Power Amplifier

The PAM consists of separate GSM850/900 PA, DCS 1800/ PCS 1900 PA blocks, impedance- matching circuitry for 50ohm input and output impedance, and a Power Amplifier Control(PAC) block with an internal current-sense resistor .The custom CMOS integrated circuit provides the internal PAC function and interface circuitry. Fabricated

onto a single Gallium Arsenide (GaAs) die, one Heterojunction Bipolar Transistor (HBT) PA block supports the GSM850/900 bands and the other supports the DCS1800 and PCS1900 bands. Both PA blocks share common power supply pins to distribute current. The GaAs die, the Silicon (Si) die, and the passive components are mounted on a multi-layer laminate substrate. The assembly is encapsulated with plastic overmold.

#### **4. Baseband**

Baseband architecture is based on AGERE's Carbon highly integrated solution and comprise mainly three chips:

##### **4.1 TR09WQTFC15IN2B-DB *Digital Baseband Processor***

Trident is a platform designed for wireless terminals. It includes the DSP16000 core, ARM7TDMI micro-controller core, and a standard set of peripherals for the DSP and ARM.

DSP peripherals: timer, one bit input/output unit (BIO), JTAG, external memory interface (EMI), and hardware development system (HDS).

ARM peripherals: external memory interface (EMI), programmable interrupt controller (PIC), reset/power/clock unit, DMA controller, test interface controller (TIC), peripheral bridge, programmable peripheral interface (PPI), synchronous serial interface (SSI), two asynchronous communications controllers (ACCs), one with IrDA, timer, analog-to-digital converter (A/D), real-timer clock (RTC), two smartcards, and keyboard interface.

##### **4.2 M-G-CSP2200B1-YV10-DB *Sceptre-TC Analog Baseband and Power Management IC***

Sceptre-TC Analog Baseband and Power Management IC has two major logical components (subsystems): power management (PSC) and conversion signal processing (CSP)

The device contains the following functions:

- Power management for RF, BB, and ancillary devices within the GSM/GPRS handset
- Battery-charge management
- Reset control
- SIM card voltage-level shifting

The CSP component is responsible for the following:

- Intraframe event scheduling
- Voice band processing, including voice band ADC and DAC
- Analog baseband processing, including baseband ADC and DAC
- Providing RF interface for Trident digital baseband device
- Transmit power control

- \_ Automatic frequency control
- \_ A5 ciphering
- \_ Low-power sleep mode and wake-up control

As shown in Figure 4, CSP2200B1 has the following major physical components:

- \_ Timing and control unit (TCU)
- \_ RF serial interface (TSIO)
- \_ Low-power sleep mode controller
- \_ Automatic frequency control DAC
- \_ Baseband transmitter
- \_ Baseband receiver
- \_ Voice band input
- \_ Voice band output
- \_ A5 ciphering hardware support
- \_ Power management