



**LBH0104  
Circuit Description**

Enfora LP.  
661 E. 18<sup>th</sup> Street  
Plano, TX 75074-5601  
(972) 633-4400  
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## **Operational Description**

The LBH0104 Dual-Band GSM Phone, utilizes a highly integrated transceiver that provides virtually all radio functions.

### **Circuitry & Devices Provided for Determining & Stabilizing Frequency**

#### **System Reference Clock:**

The transceiver uses a Digitally Controlled Crystal Oscillator (DCXO) to generate a precise system reference clock. Any initial offset error in the external crystal can be calibrated during factory test if needed.

#### **Frequency Synthesizer:**

The transceiver uses two complete PLL circuits, one for RF and one for the IF.

The IF & RF output frequencies are controlled via software. The RF VCO is used for both transmit and receive modes. The IF VCO is only used for transmit mode.

#### **Transmitter:**

The transmit section uses an I/Q baseband upconverter and an offset phase-locked loop (OPPL).

### **Circuitry & Devices Provided for Suppression of Spurious Radiation**

The output of the transmit VCO is a constant-envelope signal that reduces the problem of spectral spreading caused by any non-linearity in the RF Power Amplifier.

Low-pass filters before the OPPL phase detector reduce the harmonic content of the Quadrature Modulator and feedback mixer outputs.

A low-pass filter is also positioned in the 1900 MHz RF path between the RF PA and the RF switch to reduce spurious radiation.

### **Circuitry & Devices Provided for Limiting Modulation**

All modulation waveforms are generated by the DSP in the Analog Baseband integrated circuit.

### **Circuitry & Devices Provided for Limiting Power**

The RF Power Amplifier's output level is controlled from an analog voltage generated by the Analog Baseband integrated circuit. The Power Amplifier provides an integrated power control loop that maintains the desired power output level.



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**Circuitry & Devices Provided for USB communications**

The USB interface is accomplished by using an asynchronous 8-bit UART to USB controller. The controller utilizes an internal clock of 48MHz to meet the USB 2.0 specification data rate of up to 12Mbps. Data rates 115400kbps and 1Mbps are typical for this application.