Tune-up procedure

During manufacturing each phone will be individually calibrated.
The measurement is done in a fully calibrated setup, which is based on a Agilent 8960 base station simulator (system tester). Furthermore, the highest power level is verified afterwards in a call measurement on three channels (low, mid and high).
Procedure:
1. Set the phone to operational voltage and on one certain channel in a special service mode by means of company proprietary software.
2. The actual power is measured at several power levels.
3. The gain factors of each individual phone are adjusted until the target value is met. The appropriate gain control settings are stored in each phone individually (for each power level).
The user has no possibility to change these settings later on.

Modulation System
The radio part realizes the conversion of the GMSK-HF-signals from the antenna to the baseband and vice versa.
In receive direction, the signals are splitted into I- and Q-components and led to the D/Aconverter
of the logic part. In transmit direction, the GMSK-signal is generated by modulating the baseband I- and Q-signals within an Up-conversion Modulation Phase Locked Loop. After that the signals are amplified by the power amplifier.
Transmitter and Receiver are never active at the same time. Simultaneous receiving and transmission in two or even three bands is impossible. However, monitoring can be done independent from the receive and transmit band (RX- and TX timeslot of the band), respectively.
The RF-part is designed for Multi-band operation (EGSM900,DCS1800,PCS1900) supporting GPRS functionality up to multi class 10.
The RF-circuit (see separate attachment: S56 Block Diagram) consists of the following components:

Transceiver : SKYWORKS chipset (CX74063) with the following functionality :

- The receiver path consists of three integrated Low Noise Amplifier (LNAs), a quadrature demodulator and tunable receiver baseband filters.
- The transmitter path consists of an I/Q modulator within a frequancy translation loop designed to perform frequency upconversion with high output spectral purity. The loop contains a phase-frequency detector, charge pump , mixerand hight power transmit VCO.

Antenna Switch : Murata -- LMSP65DA-219
Power Amplifier : SKYWORKS -- CX77314
Receiver SAW filters : Murata -- SAFSE942(GSM), EPCOS -- B7744(DCS)/B7740(PCS)
Clock : 26MHz TCVCXO

For more general GSM information and access (download) of voluminous paperwork see: