Final amplifier stage

Nominal voltage	4,0 V	
Minimum voltage	3,3 V	
Maximum voltage	5,2 V	
Maximum current	1,3 A	GSM900 full power (+33 dBm)
Maximum current	0,8 A	PCS1900 full power (+30 dBm)

Schematics and part list

Schematic diagrams and part list of the phone are included in the service manual.

Devices provided for determining and stabilizing frequency

The RF part includes 3 VCO:s, RFVCO, IFVCO and TXVCO, which are all used during transmit to determine the TX frequency.

The RFVCO X651 frequency is controlled with dual PLL I651 through loop filter formed by C692, R691, C691, R662 and C673. The RFVCO operating voltage is filtered with C674, C675, R663 and C677.

The active part of the IFVCO is integrated in the RF ASIC I621. It forms an oscillator together with L653, C698, C662, R683, C663, C687, L651, C689 and D651. The supply voltage to the IFVCO is filtered with C660 and R685. The frequency of the IFVCO is controlled with the same PLL as the RFVCO. The IFVCO loop filter is formed by C680, C699, R686, R682, C690 and R681.

The frequency reference for the dual synthesizer is the 13 MHz TCXO X451, whose frequency is fine tuned by baseband IC I202. The AFC signal is filtered with C451, R451 and C452.

The transmit frequency is generated in the TXVCO X721, whose frequency is phase locked to the synthesized frequencies of the RFVCO and IFVCO. The active part of the transmit loop is integrated in I621. The TX loop filter is formed by C730, R730, C733, R729 and C726.

Devices provided for limiting modulation

Baseband I and Q signals carrying the modulation are created in the baseband ASIC I202. They are transferred to the RF ASIC I621 via low pass filters formed by R215, R216, R217, R218, R721, R722, R723, R724, C722 and C723. The TXVCO signal is modulated in the transmit loop formed by I621 and loop filter C730, R730, C733, R729 and C726.

Devices provided for limiting power

Transmit power generated in the power amplifier I751 is measured with dual band directional coupler X753. L751, C784, R752 and R754 are needed to ensure equal coupling over the transmit frequency range. Transmit power is controlled with power control loop formed around operational amplifier I702. Other components in the loop are C785, R715, R714, C709, D701, R713, R712, R710, R711, C704, R708, C705, R704, C706, R709, C708, R706, R705 and C770. Q703 ensures that the power control loop output is zero when the transmitter is switched off. The transmit power is controlled by the RAMP signal coming from the baseband ASIC I202. Transmit power levels of each phone are tuned in the production line.

Devices provided for suppression of spurious radiation

Spurious transmissions outside the transmit loop bandwidth are attenuated by the transmit loop described earlier. The antenna switch X751 includes low pass filters that attenuate the power amplifier harmonic signals.