

GSM1900 THEORY OF OPERATION

FCC ID: APYHRO00148

a) The DC V/I at the final RF amplifier device

DC voltage	4.0V max
DC current	2uA at sleep mode , 1000mA peak at TX mode

b) Freq. Stabilizing, Limiting TX Power

X100	VCXO	Crystal oscillator
IC100	WCDMA/GSM-RFIC	

IC100 supports triple-band GSM 900/1800/1900 MHz and single-band WCDMA 2000 MHz

The GSM features are following.

1. Triple-band individual RX Low Noise Amplifiers for GSM 900/1800/1900 MHz.
2. I and Q baseband receive channel amplifiers with on-chip anti-aliasing filtering.
3. I and Q receiver sigma-delta ADCs.
4. Digital interface for the receive I and Q channel.
5. Prescaler for direct VCO modulation in transmit mode.
6. Transmit output buffer with controllable output power level.
7. Fully integrated transmit RF baluns.
8. Digital interface for the transmit frequency and amplitude modulation.

IC200	RF Power Amplifier	The PA amplifies output signal from RF transceiver of IC100 with power control.
IC1100	Host CPU LSI	IC1100 is a highly integrated digital baseband controller ASIC.
IC2101	Audio and Power Management IC	IC2101 supplies power to IC100.

c) Gaussian Filter for MSK

The GMSK modulator is implemented using digital logic and a ROM look-up table.

The input data is differentially encoded and used to address a ROM which combines the Gaussian pulse shaping and the minimum shift-keying (MSK) modulation. The Gaussian pulse shaping has an impulse response of four bit periods. The resulting signal has a bandwidth-time period (BT) product of 0.3.