Operating Instructions

GPC-3000 OPERATING INSTRUCTION

Before the card can be used to access the Internet or sending/receiving e-mails etc., installation of software for the GCP-3000 144k card will need to be performed as per the instructions that accompany the installation diskette/CD. When the card is installed and configured properly, the card will be automatically recognized when inserted in the type II slot in a Laptop computer. Clicking on the self-explanatory icons in the GCP-3000 144k driver software can access the data services.

Receiver Operation Mode

85.38 MHz of Receive center frequency includes CDMA spread spectrum modulation signal that is extended as ±630KHz. Receive center frequency is converted to the signal of I & Q base band through the mixer that is installed in IFR3000. The unusable signal and jamming signal is filtered through a Low Pass Filter and only the usable signal is transferred to MSM 5000 to be digitalized. Analog I & Q base band in CDMA mode is converted to digital signal by 4bit Flash ADC that is distinguished as two. CDMA and ADC is output as new digital value at the falling edge of CHIPx8, 9.830MHz

Receiver specification

Frequency range: 869.040 ~ 893.970 MHz
Local oscillator frequency range: 954.42MHz ~ 979.35MHz

IFR3000

IFR3000 consists of AGC part and Base-Band Analog Processor Part.
AGC is designed to control the gain according to the strength of IF signal that is received the center frequency that is generated from down converter within 90dB of maximized dynamic range. 90dB dynamic range is +45dB when gain control voltage is 2.8V and is –45dB when gain control voltage is 0.1V but actually uses 80dB (0.3V ~ 2.3V) of gain range. The Base-Band Analog Processor Part of IFR3000 manages the signals between RF section and digital signal processor circuit and converter. The analog signal to digital while operation in Rx mode converts the analog signal to digital signal. Also, as explained above, it designed to interface to MSM5000 directly converting the center frequency to the signal of base band and analyzes and control the various information that is included in the signal of base band.
Three-line Serial Bus Interface (SBI) for initializing and control of the IFR3000 from MSM5000

Transmitter Operation Mode

8 Bits I & Q Data from the MSM5000 is input to I & Q D/A Converter. I data from rising edge of transmit clock is saved at I DAC and Q data from falling edge is saved at Q DAC. The frequency spectrum of CDMA DAC has the unusable noise that is generated at transmit clock and these unusable noise is filtered at the anti-aliasing low pass filter (±630KHz) But, the offset adjustment, as Rx mode is not needed. These analog, I & Q signals is synthesized differentially with 130.38MHz that is generated at the synthesizer of transmit center frequency and transferred to transmit AGC part.

Transmitter specification

Frequency range: 824.040 ~ 848.970 MHz
Local oscillator frequency range: 954.42 ~ 979.35 MHz
Center frequency: 130.38 MHz
Output power: 450mW

IFT3000 (Base band -IF Converter)

IFT3000 consists of AGC part and base band Analog Processor Part and TX IF PLL.
FIT3000 converts digital I & Q base band components into analog I and Q components, and converts up to the IF frequency and puts out a controlled amplitude. AGC is designed to control the gain according to the strength of signal that is generated from transmit IF synthesizer within 84dB of maximized dynamic range. 84dB dynamic range is +0.8dB when gain control voltage is 2.7V and is –82.3dB when gain control voltage is 0.3V but actually uses 80dB (0.7V ~ 2.5V) of gain range.
Single mode operation for CDMA transmit signal path includes.
Three-line Serial Bus Interface (SBI) for control of the IFT3000 via the MSM5000

PLL synthesizer (954.42 ~ 979.35 MHz)

PLL Loop consists of dual PLL synthesizer module and VCTCXO and generates the frequency of 954.42 ~ 979.35 MHz that is adapted for both 1 ST local mode of TX/Rx.