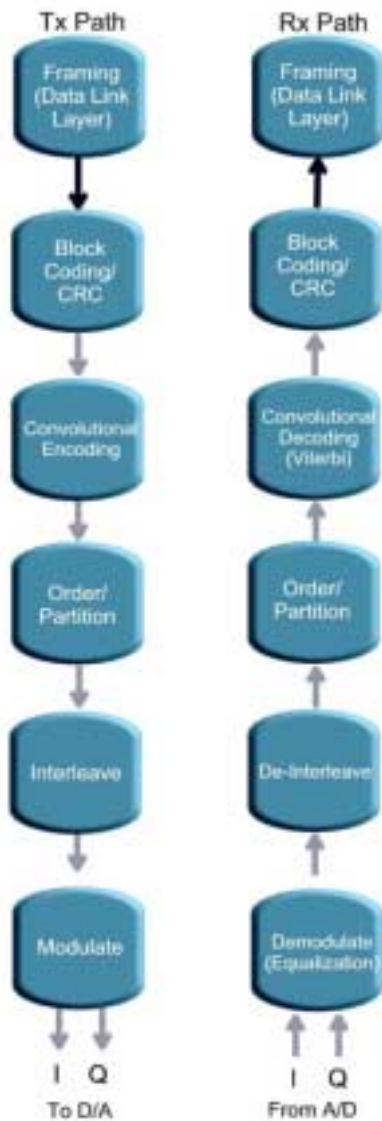




GSM/EGPRS/EDGE PHYSICAL LAYER LIBRARIES



DelCom Systems offers a suite of physical layer signal processing software modules for GSM, EGPRS, and EDGE that enable its customers to quickly integrate voice, data, and packet-data capabilities into their existing products and new designs.

Our soft-radio libraries have been developed using object-oriented techniques. Written in highly portable fixed-point C, they are available for both the TI TMS320C6000™ and TMS320C5000™ families of digital signal processors and other platforms. All core base-band processing algorithms needed for mobiles or base-stations are available. These building blocks also provide all the key components necessary to build custom GSM applications such as law enforcement monitoring systems, test equipment, and specialized wireless modems.

Receive Processing

The solution includes all modules necessary to process input base-band I/Q samples including synchronization, equalization, demodulation, de-interleaving, decoding, and error detection. DelCom's GMSK and EDGE/8PSK equalizers included in the suite offer superb receiver performance under a wide range of 3GPP 45.005 impairments.

Transmit Processing

The transmit chain accepts blocks of information from the data link layer and performs all necessary processing including block coding, convolutional encoding, interleaving, burst modulation, and pulse shaping.

GSM Channel Types:

Full rate traffic channel (TCH/F)

- Full rate traffic channel for speech (TCH/FS)
- Enhanced full rate traffic channel for speech (TCH/EFS)
- Adaptive full rate traffic channel for speech (TCH/AFS)
- Wideband adaptive full rate traffic channel for speech (TCH/WFS)
- Full rate circuit switched data (TCH/F14.4/F9.6/F4.8/F2.4)

Half rate traffic channel (TCH/H)

- Half rate traffic channel for speech (TCH/HS)
- Adaptive half rate traffic channel for speech (TCH/AHS)

Control Channels

- Frequency correction channel (FCCH)
- Synchronization channel (SCH)
- Broadcast control channel (BCCH)
- Common control channels (CCCH: PCH, RACH, AGCH, NCH)

Circuit switched dedicated control channels:

- Fast, TCH/F associated, control channel (FACCH/F)
- Slow, TCH/H associated, control channel (SACCH/H)
- Fast, TCH/H associated, control channel (FACCH/H)
- Stand alone dedicated control channel (SDCCH/8)
- Slow, SDCCH/8 associated, control channel (SACCH/8)
- Stand alone dedicated control channel, combined with CCCH (SDCCH/4)
- Slow, SDCCH/4 associated, control channel (SACCH/4)

GPRS Channel Types:

- Full rate packet-data traffic channels CS-1 through CS-4 (PDTCH/F)
- Packet Broadcast Control Channel (PBCCH)
- Packet Common Control Channels (PCCCH: PPCH, PRACH, PAGCH, PNCH)
- Packet Dedicated Control Channels (PACCH, PTCCH/U, PTCCH/D)
- Packet Associated Control channel (PACCH)

EGPRS/EDGE Channel Types:

- Full rate packet-data traffic channel MCS-1 through MCS-9 (PDTCH/F)

Modulation/Demodulation/Detection:

- GMSK modulation, pulse shaping, demodulation, and equalization
- 8PSK (EDGE) modulation, pulse shaping, demodulation, equalization
- GMSK/8PSK blind detection
- FCCH/SCH detection and synchronization