RF Communications Chain

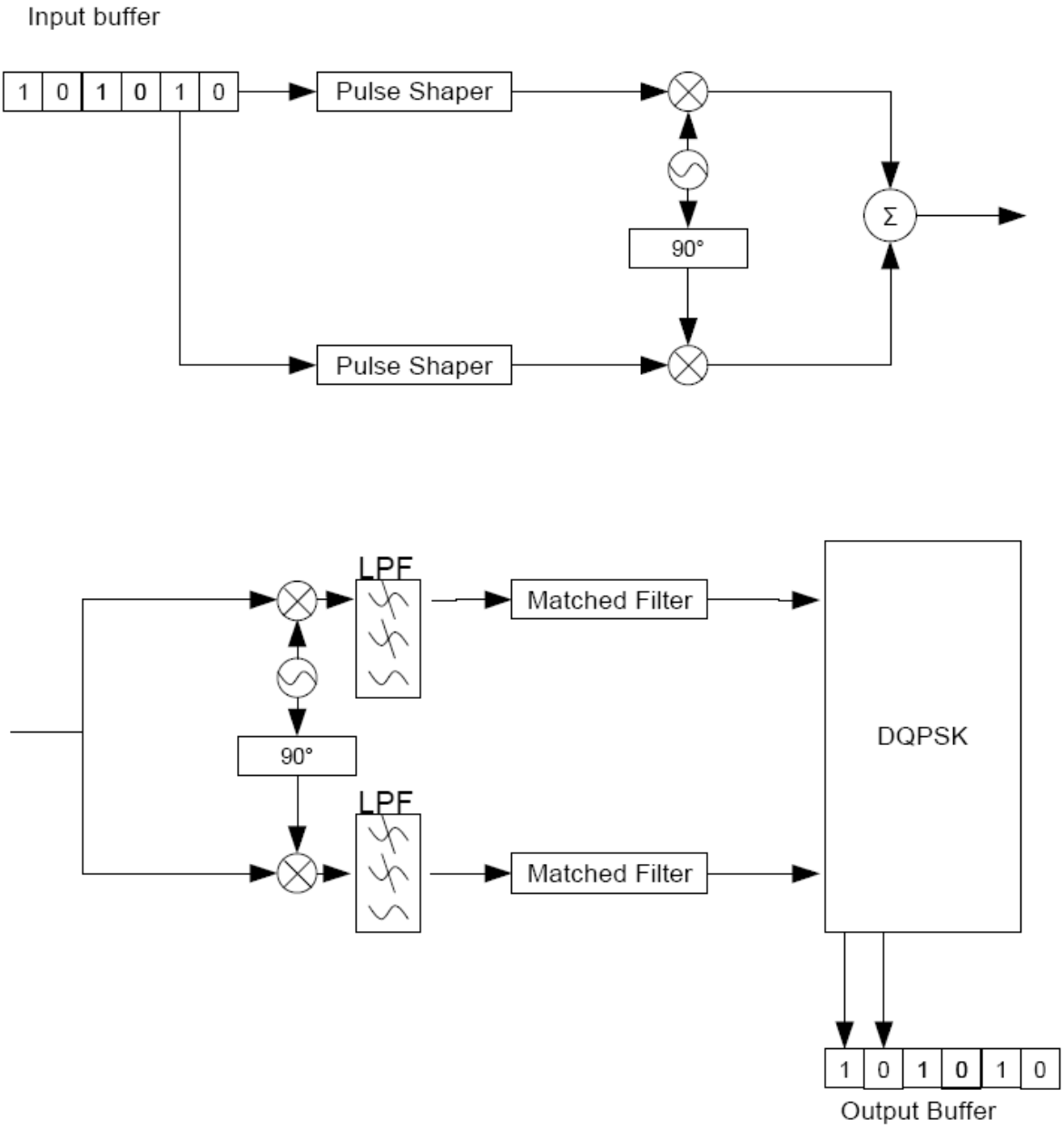

Figure 1 – Communication Chain

Communication between the Earth and the lunar module will be accomplished by modulating a turbo coded signal onto a carrier frequency. The signal will encoded and decoded using the S2002 DVB-RCS. After encoding, bits are converted to Gaussian pulses. Two pulses are then sent simultaneously using a QPSK modulation. One will be modulated on the in phase and the other on the on the quaternary phase. The up-

link signal will be modulated onto a carrier frequency of 2119 MHz and the down-link signal will be modulated on to a carrier frequency of 2278.5 MHz. When the signal is received it will be demodulated into an in phase and quaternary phase signal and sent through a matched filter. The output bits are then sent into a DPQSK receiver which outputs the bits into our turbo decoder.

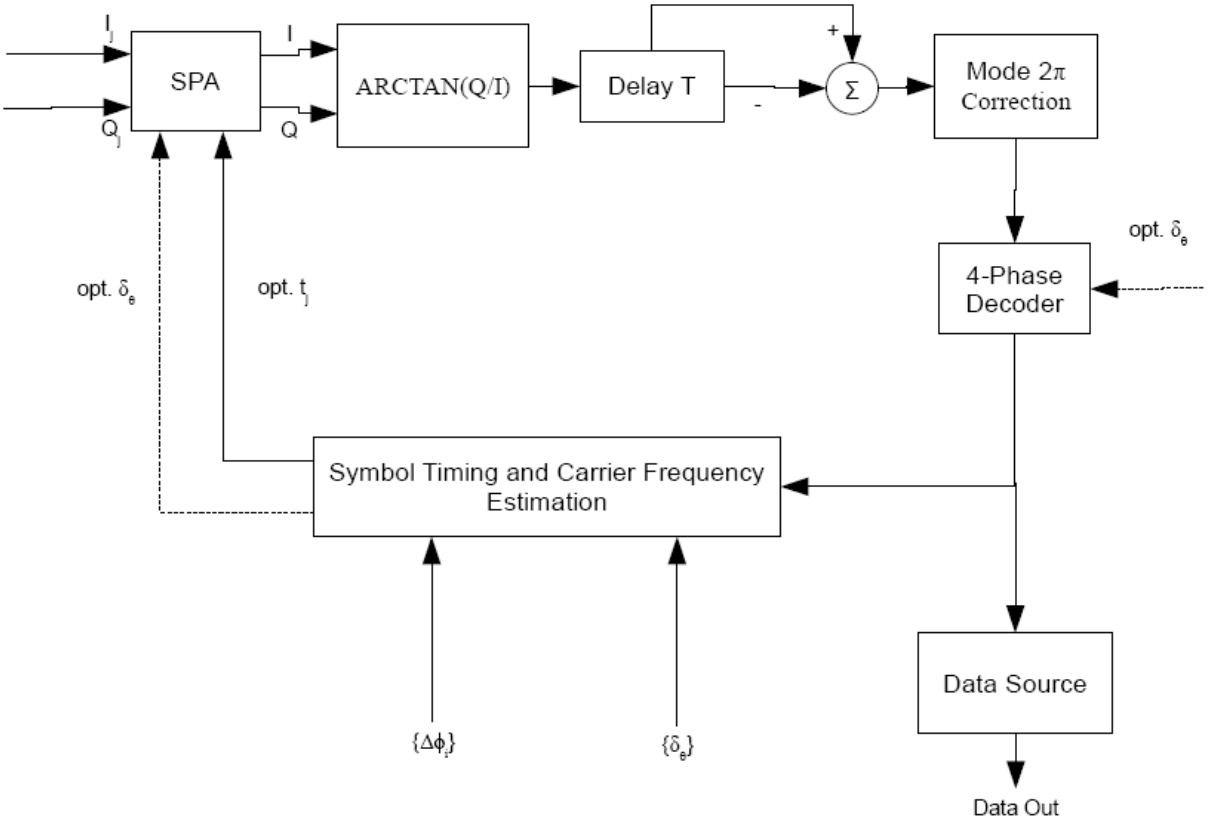

Figure 2 – DQPSK TX and RX