

## (((● **Introducing the Explorer IV Satellite Simulator**

*by Space Coast Communication Systems, Inc.*

The Explorer UHF Satellite Simulator is a low cost, flexible platform for emulating UHF SATCOM and LOS behaviors. Our goal in development of this simulator is to offer user configurability over an ultra reliable digital backbone. Since the Explorer is programmable future manifestations can emulate other satellite systems such as MUOS, TCDL or Inmarsat.

The Explorer Satellite Simulator allows the user to configure real world parameters such as time delay, Doppler and Doppler rate, additive white Gaussian noise (AWGN) and 5 and 25 kHz transponder effects. The models are based on the same system specifications as the real transponder hardware.

In the basic configuration, the Explorer Satellite Simulator allows the user to interface at either RF, 243-318 MHz or optionally at IF (60-80 MHz). Unlike any other satellite simulator Explorer allows the user to record, on an internal hard drive, the near baseband in-phase and quadrature (I&Q) signal.

## (((● **Features**

Four independent SATCOM channels

Internal 10 MHz reference at +/- 1.5 ppm frequency stability

70 MHz input/output optional

30 dB dynamic range on input (uplink)

-40 to 0 dBm signal power on output (downlink), 50  $\Omega$  impedance

Programmable latency 100 usec to 1 second

5 or 25 kHz transponder 6-pole Chebyshev filters

hard-limiting transponder amplifier

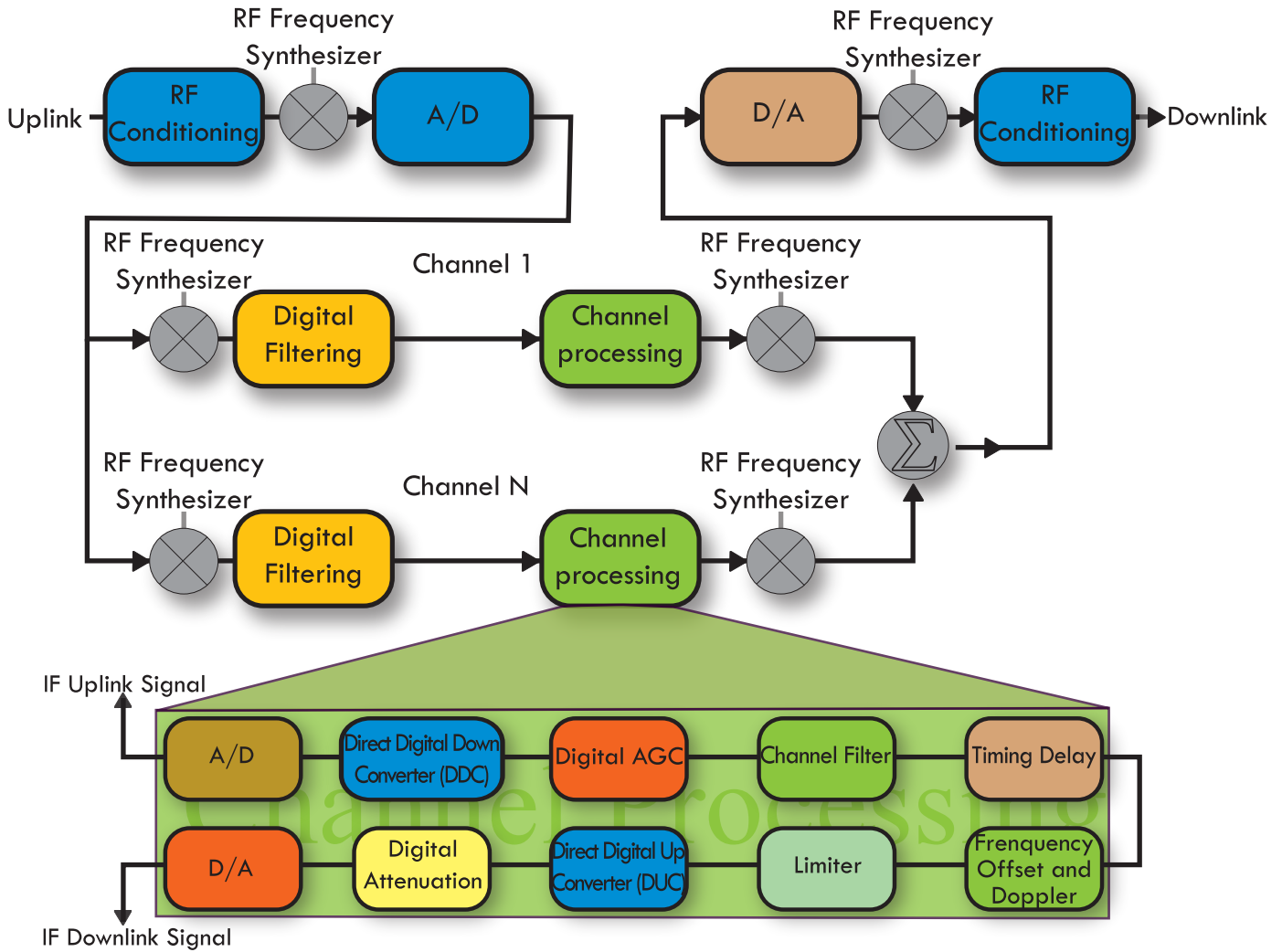
programmable Doppler, -1.2 to +1.2 kHz

Doppler rate with up to 32 Hz/sec sweep

AWGN, 22 to 79 dB C/N<sub>0</sub>



# Explorer IV Satellite Simulator Block Diagram



## Technical Specifications

Socket-based control interface. Java-based client software runs on any Java-enabled operating system. Supports simultaneous FOW/CCOW order-wire channels required by Integrated Waveform / CIB. Ultra reliable digital multi-channel backbone based on Red Rapids Waverunner M253, Linux 2.6 kernel

and customized fixed latency drivers. Signal capture capability for off-line post-processing. For more information contact <mailto:jbard@spacecoastcomm.com>