

Digital Telemetry Receiver and Transmitter (DTRT)

The digital telemetry receiver (DTR) is compliant to IRIG-106 standards for applications in aeronautical telemetry links. It plays a crucial role in the ground telemetry system for missile telemetry and satellite communication application right from assembly/ integration of the flight vehicle until the actual flight test. The DTR belongs to third generation receiver in the telemetry industry, in which it can interface the telemetry antenna with the display system, by performing all signal/ data processing operations using analog and digital hardware and firmware. The DTR is equipped with independent local oscillators for tuning. The down-converter outputs are band-limited using filters and then digitized using high-speed ADC. The digitized signals are converted into equivalent, complex base-band representation, denoted as IQ signals, for further processing using DSP algorithms implemented on FPGA.

Key Features

- Dual Channel RF and IF Receiver
- Trellis Detection for improved performance
- Diversity Combiner and Equalizer
- Convolutional, Demodulation and LDPC Decoding
- Frame Synchronization
- Telemetry over IP Support and In-built Telemetry Generator
- Supports display over Ethernet and HDMI

The digital transmitter (DTX) is compliant with IRIG-106 standard and is suitable for air-borne applications. The data rate, carrier frequency, output power and modulation scheme are configurable by user. Advanced features like FEC encoding, light-weight etc have been implemented. It can accept variety of inputs viz., unfiltered PCM stream, filtered PCM stream and pass-band signal and configurable parameters like data rate, carrier frequency, output power and modulation scheme has been indigenously realized.