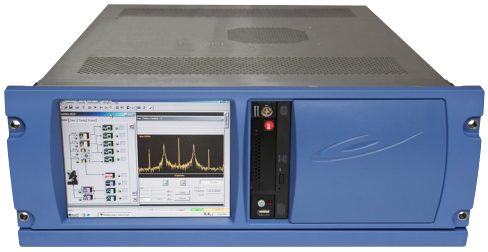
DATA SYSTEMS

TRACK TRANSMIT RECEIVE RECORD

CORTEX CRT eXplorer

The leading COTS & Multimission solution for Deep Space application



SATELLITE TRACKING SOLUTIONS

CORTEX

BEST IN CLASS BASEBAND FOR DEEP SPACE APPLICATIONS

With a vast experience in TT&C with the Cortex series, SDSY introduces the Cortex eXplorer, inheriting a high level of knowledge of the Cortex Baseband family.

It has been designed to offer an exceptionnal spectral purity, a very high sensitivity, and superior signal processing capacities for Telemetry & Ranging in Deep Space environment.

FLEXIBLE ARCHITECTURE

The Cortex eXplorer is based on a software defined architecture that enables a continuous lifelong evolution. An easy “on site” software upgrade gives you the possibility to install new features and the latest standards available.

ISTRAC MOM

ESA Exomars

JAXA MMX

STANDARD PROTOCOLS WITH DEEP SPACE PRECISION REQUIREMENTS

HIGHLY INTEGRATED COTS EQUIPMENT

FLEXIBLE ARCHITECTURE FOR CONTINUOUS IMPROVEMENT

ON SITE UPGRADEABLE

HIGH LEVEL OF RELIABILITY WITH NO PREVENTIVE MAINTENANCE

DEDICATED RANGING STANDARDS

SAFRAN

SATELLITE TRACKING SOLUTIONS

CORTEX CRT eXplorer

DOWNLINK

Independent IF Input ..... 3 (NOM+ALT)

Telemetry

Telemetry Channels ..... Up to 6
Waveforms..... PCM/PSK/PM, PCM/PM, BPSK, (O)QPSK, GMSK, 8PSK
Phase Locked Loops ..... Second or third order up to 0.1 HZ
..... Doppler steering Carrier and Subcarrier
Demodulation Rate ..... from 7bps to 40Mbps
Subcarrier Frequency ..... Up to 2 MHz, sine or square
Decoding schemes ..... Viterbi ½ or punctured
..... Reed Solomon (255,223), (255,239)
..... Turbocode ½, 1/3, ¼, 1/6
..... LDPC ½, 2/3, 4/5, 7/8
Acquisition Threshold ..... C/No down to 8 dB.Hz
BER Degradation ..... < 0.5 dB (Typical)
IF Level Range ..... -15 to -130 dBm
Telemetry Simulation ..... File, Replay, Random data, LAN
Polarization Diversity Combining ..... Pre-Detection, Post-Detection

Narrow Band Recorder (RSR)

3 Channels IF Record & Replay ..... 80 MHz Aggregate Bandwidth
Inter-Channel Synchronization ..... <5 ns
Open Loop Receiver with DDOR function

UPLINK

Open Loop Receiver with DDOR function
Independent IF Outputs ..... Quantity 2, Frequency 70MHz or 230MHz
Analog performances ..... Enhanced phase noise and Allan Deviation
..... Spurious < -70dBc

Telecommand

Modulation ..... PM FM BPSK (0)QPSK GMSK
Encoding schemes ..... BCH or LDPC short codes
Bit Rate ..... 4 bps to 2.6 Mbps
Data Link Layer ..... CCSDS COP-1, SLE
Telemetry Simulation ..... TM Loopback, Noise Source

RANGING

Ranging Standard ..... ESA-Tone, ESA-Like, ESA-Code, USB,
..... CCSDS PN, DDOR
Ranging Measurement ..... Extended messages for long range
..... measurements
..... Resolution down to 1ns
Doppler Measurement ..... Accurate doppler measurements
..... Sampling up to 60s
Ranging Mode ..... 2 & 3 ways
Major Tone Frequency ..... < 1.5 MHz
PLL bandwidth ..... 1 mHz to 20 Hz

TOOLS

Measurements ..... BER, Eb/N0, Frequency, Doppler
Signal Retrieval ..... Doppler Compensation, Automatic Ambiguity
..... Resolution
Monitoring & Control ..... Remote, Local, Web Based GUI, ReST
Signal Monitoring ..... Spectrum & Constellation Display

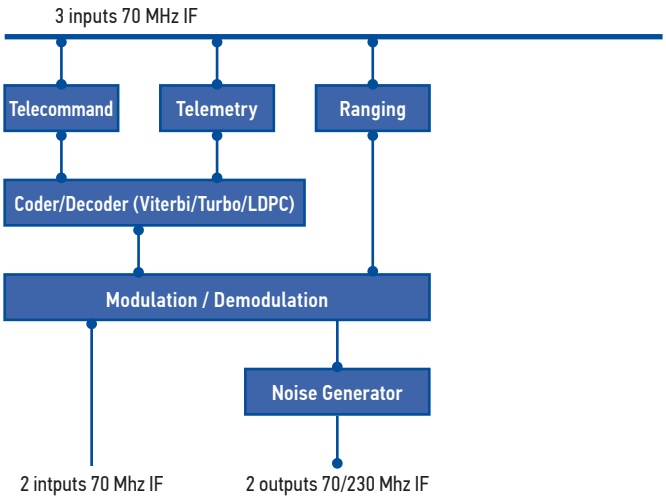
TIME & FREQUENCY

Time Format ..... IRIG-B, NASA-36, NTP
Frequency ..... Internal/External Clock 5, 10, 100 MHz

ENVIRONMENT

Chassis Size ..... 2U or 4U
Chassis Weight ..... 25 kg / 55 lb (Average)
Operating Temperature ..... +5°C to +40°C / +41°F to +104°F
Power Supply ..... Hot-swappable redundant
Test points ..... Video, RS422 or TTL

ARCHITECTURE



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