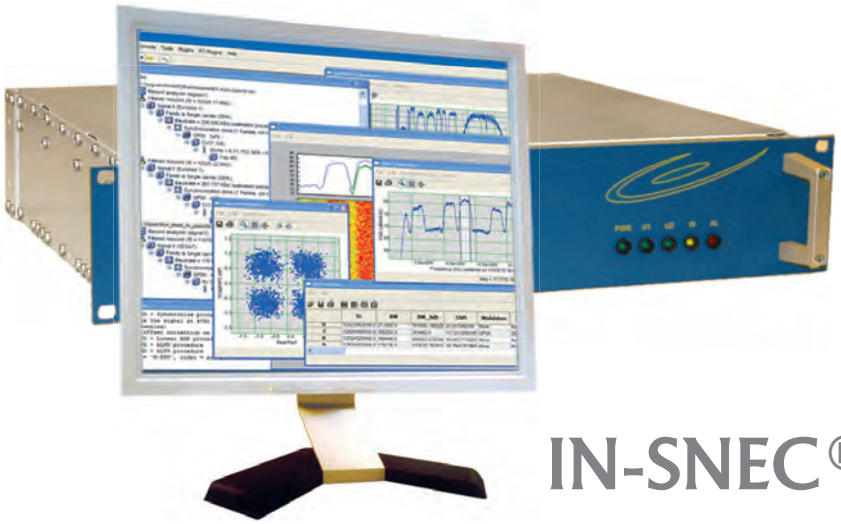
CSA - Carrier & Signal Analyzer



GET into IFoIP TECHNOLOGY

IN-SNEC®

Be the fastest and "smartest", to visualize, analyze, monitor and locate the multitude of signals conveyed by communications satellite transponders or by the HF communications. To be successful in solving these complex tasks Zodiac Data Systems provides extensive solutions based on our unique company's integrated hardware architecture, using "state-of-the-art" digital signal processing techniques.
Zodiac Data Systems comprehensive toolbox is composed of Carrier & Signal Inspector (CSI) to visualize up to1.2GHz spectrum bandwidth and also detect the carriers. Combined with the Carrier & Signal Monitoring (CSM), spectrum monitoring rules can be defined to alert the user of any QoS damage or the appearance of interference. Each unknown carrier can be characterized with our blind Carrier & Signal Analyzer (CSA) and simultaneously can quickly and accurately locate the interference transmitter's position with the Compact GeoLocation (CGL).

CSI - Carrier & Signal Inspector
The CSI is a real time solution displaying up to 1.2 GHz spectrum with the capability to detect the carriers and to display the noise level. Associated with a QoS option the CSI monitors carriers and display in real time the carrier parameters, constellation and the occurrence of carrier under carrier.

CSM - Carrier & Signal Monitoring
The CSM is an all-inclusive spectrum monitoring solution, providing powerful intuitive GUI to survey and to improve the QoS of satellite communications. In order to deliver the best QoS and fast reactiveness, the CSM detects and reports all intrusions in real time, sends alarms and executes user defined actions automatically. The CSM can also analyse a complete satellite transponder or an HF terrestrial band at a very high speed.

CSA - Carrier & Signal Analyzer
The CSA is a high performance full blind analysis solution with the ability to characterize each carrier in the spectrum. Open to customer's applications, the CSA integrates plugins, customized databases and open development environment. In case of carrier under carrier the CSA processes the separation and analysis of the main and the hidden signal.

CGL - Compact GeoLocation
The CGL is a 'state of the art' design, oriented towards ease of operation. The GUI greatly simplifies the complete process with its capability to locate transmitters in "one click". Coupling the CSM capabilities to detect interferences with the autonomous and full automated CGL fast results and accurate positions of interferers are delivered.

Main Functions

- Blind analysis
- Signal Detection
- Processing
- Classification

Main Features

- Both analog & digital parameters measurement capacity
- Spectrum decomposition
- MPSK, MQAM, MPAM, APSK , DBPSK, SDBPSK, DQPSK, SDQPSK, OQPSK, 16QAM modulations
- FEC recognition
- Integrated databases (more than 50 communications standards)
- Application configuration in manual, semi-auto or full-auto modes
- Full-Software processing
- Open development environment
- Electromagnetic scene simulator to design complex scenarios and generate signals

Main Benefits

- Very high flexible architecture
- Easily extensible and adaptative software
- Very compact and simple solution; Easily transportable
- High reliability
- Very high speed multitasking
- Very easy and intuitive GUI
- More capabilities with IN-SNEC® CSI
- High maintainability
- Same hardware for IN-SNEC® CSI, CSA, CSM and CGL

ZODIAC DATA SYSTEMS
AEROSAFETY & TECHNOLOGY
Telemetry & Telecommunications

ZODIAC AEROSPACE

CSA Carrier & Signal Analyser

Technical specifications

Signal Processing

Data acquisition

Modulations
Digital linear : MPSK, MQAM, MPAM, APSK
Differential : DBPSK, SDBPSK, DQPSK, SDQPSK, ...
Offset Quadrature : OQPSK, O16QAM, ...
M-FSK : all parameters estimated (rate, index,.)
OFDM (rate, FFT size, ...)
CPM (index, filter type, rate, ...)
Analog (FM, AM)

FEC detection and recognition (CV & RS)

Works under both AWGN and time/frequency fading channels (cyclostationnary algorithms and full blind equalizers)

End-to-end analysis time : 2 seconds/signal

Databases

> 50 communication standards
Satellite database
Transmitter database

Data display Graphic User Interface

Interference Detection

Measurement > 30 carriers /s

Blind signal analysis

Automatic carrier detection

Carrier under carrier detection

Adaptative signal cancellation

Signal Analysis

Data reporting Log-file, task, link budget

Data management automatic set-up, recording into databases

Measurements

RF parameters
Pi Input Power
Fc Carrier Frequency
BW3dB 3dB bandwidth
BW Total bandwidth
N0 Noise level
QoS parameters (in option)
Eb/N0 Bit energy to noise density ratio
Digital parameters
Modulation; Constellation
Baud rate; Bit rate; FEC; RS

Calibration On request (PFD calculated)

TV signals On request (MPEG2 conformity)

Software tools

Spectrum sweeping capability

Multiband capability

Remote client

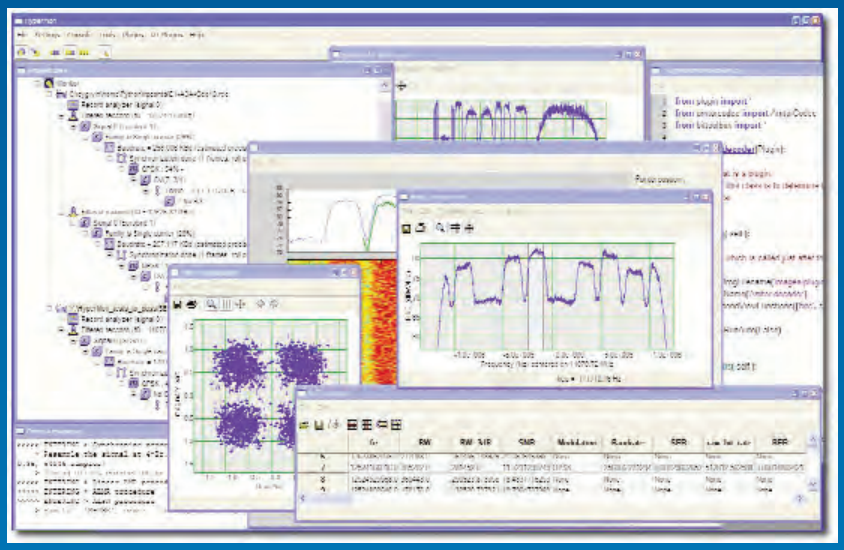
SOFTWARE FEATURES

GUI

Context sensitive pop-up menus

Multi windows :
- Spectrum analyzer
- Sonogram analyzer

One click from start to results
- Instantaneous frequency
- Constellation



Configuration

Software licenses :
- Signal Acquisition & Processing (TCP/IP interface)
- Signal Analysis (GUI) (Hypermon)
- Simulator (HyperSim)

XML-RPC interface

- CSI configurations
- SDSP operations

HARDWARE FEATURES

Refer to the IF over IP data sheet

Model references :

IN-SNEC® CSA - nU - X - Y*

*nU	=	chassis dimension (2, 3 or 4U)
*X	=	quantity of VME Converter board VME-RF-x2IF-y
*Y	=	quantity of VME IFoIP Wideband Acquisition board VME-IFoIP-WB

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