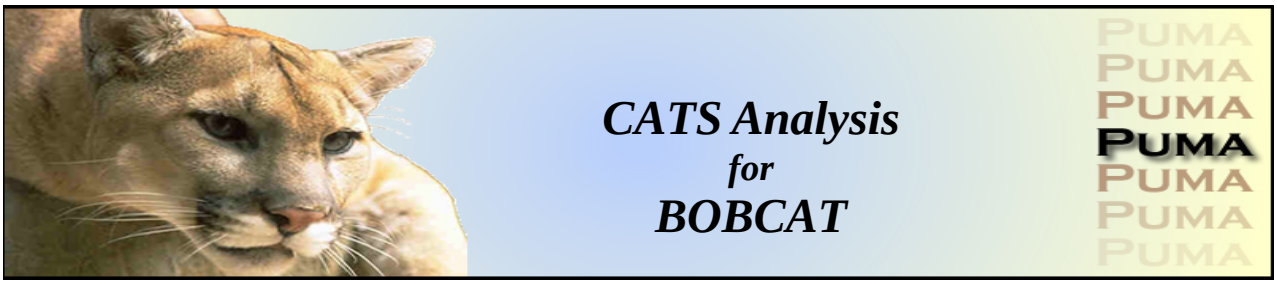
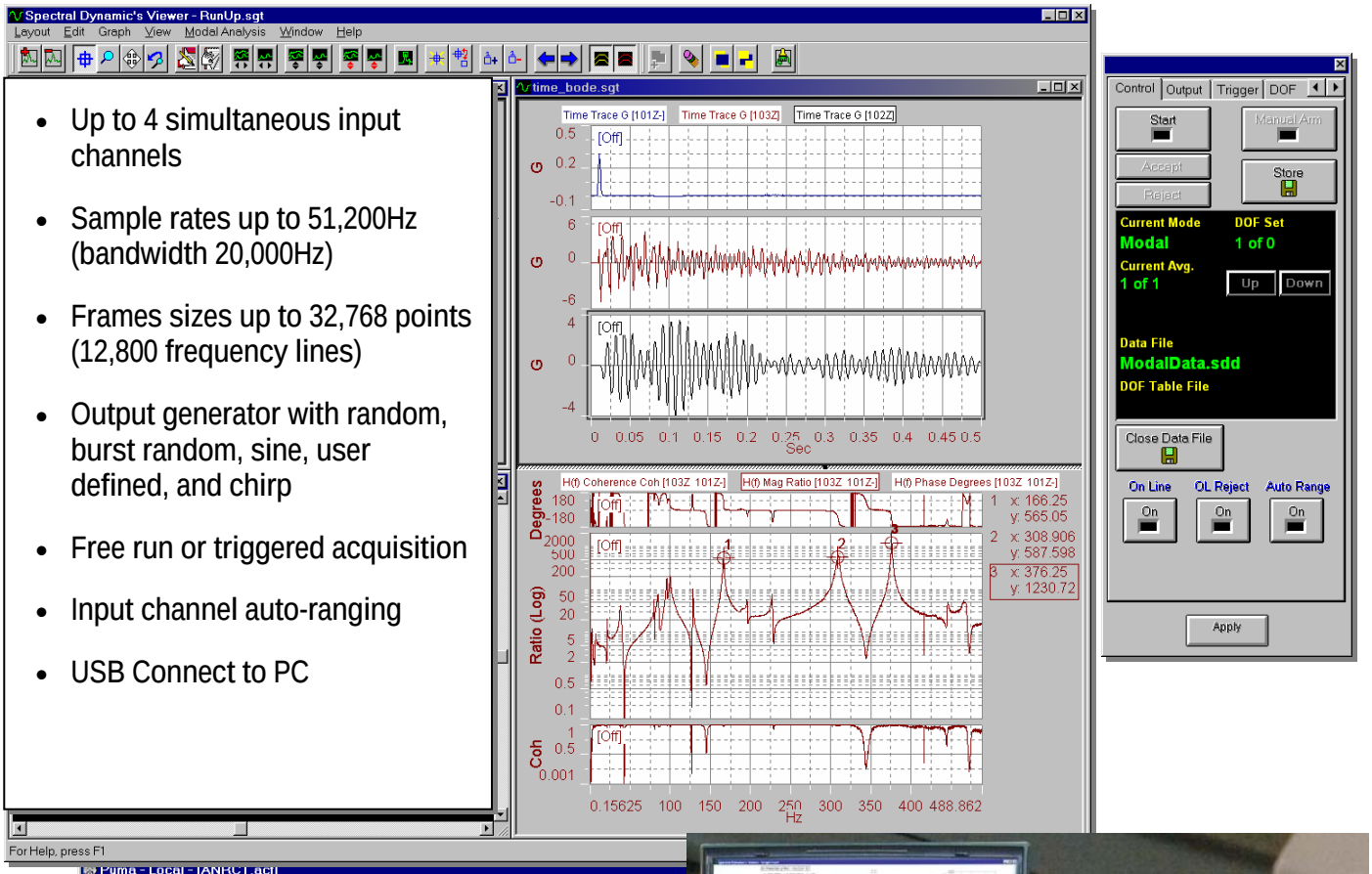
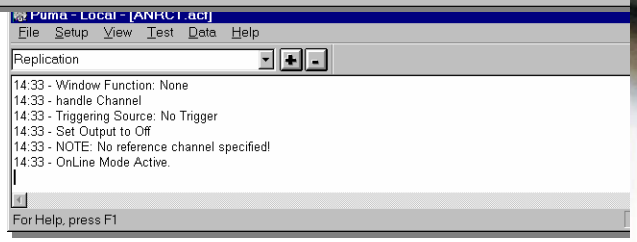


The *Computer-Aided Test Suite*™ Signal Analysis program provides a comprehensive set of tools for data acquisition and signal analysis. Signal Analysis also includes signal source output for excitation of structures for modal data acquisition. Data storage in STAR™, MATLAB™, and Universal File Format provides extensive post test analysis capabilities.

- Up to 4 simultaneous input channels
- Sample rates up to 51,200Hz (bandwidth 20,000Hz)
- Frames sizes up to 32,768 points (12,800 frequency lines)
- Output generator with random, burst random, sine, user defined, and chirp
- Free run or triggered acquisition
- Input channel auto-ranging
- USB Connect to PC





CATS™
Computer Aided Test Suite

Input

Input channels	4: all simultaneously sampled
Input dynamic range	>92 dB
Maximum input	±10V
Voltage ranges	27 mV to 10V full scale, 3dB steps
Overload detection	Full scale on all channels, analog and digital detection
Voltage coupling	AC or DC
ICP power	4mA (20V maximum into open circuit)
Maximum rated input signal	±35 Volts peak
Sampling rate	51,200 samples per second
Frame size	512, 1024, 2048, 4096, 8192. 16384, 32768 Samples
Frame duration	10ms to 256 seconds

Output

Output channels	1
Output dynamic range	>90 dB
Maximum output amplitude	± 12V peak
Maximum output current	16mA
Voltage range attenuator	Programmable 48-bit
Attenuator range	0 to -160dB
Sampling rate	51,200 samples per second
Drive signals	
Random	Broadband; up to 3 Vrms
Sine	1 to 10000Hz; up to 10 Vpeak
Pseudo random	Broadband; up to 3 Vrms
Sine chirp	Fast sine sweep
Burst random	Windowed random burst with variable duration
User-defined	User-defined shaped broadband output

Analysis

Frequency range (DC to)	50, 100, 200, 500, 1000, 2000, 5000, 10000 and 20000 Hz
Frequency resolution	200, 400, 800, 1600, 3200, 6400 and 12800 lines
FFT windows	Uniform, Hanning, Blackman, Calibration, Force/impact, Hamming, Blackman-harris and Correlation
Window Scaling	Broadband or Narrowband
Spectra Weighting	Flat (None), A , B ,C acoustic functions

Averaging

Types	Linear, exponential, peak hold (max)
Number	1 to 32,768
Overlap Processing	None, 25%, 50%, 75%, Max.

Triggering

Modes	Free run, automatic, manual
Source	Any Input channel
Threshold	±mV, ± percent of full scale
Slope	Rising/failing
Delay	Specified in ms or percent of frame
Pre/Post-trigger duration	Specified in ms

Channel Setup

Channel type	Measurement, Reference, Measurement, inactive
Sensitivity	0.001 to 1,000,000 mV/EU
ICP power	On/off
Coupling	AC or DC
Channel label	Up to 8 characters for each channel
Transducer serial number	Up to 10 characters for each channel; DB optional

EU Definitions

Base Engineering Units	Label(EU), Conversion(EU/Transducer Units)
EU Calculations and Support	Integrated (Label and Scale Factor), Double Integrated(Label and Scale Factor), Differentiated (Label and Scale Factor), Double Differentiated (Label and Scale Factor)

On-Line Controls

Start/Stop test	Initiates or stops data acquisition
Auto-range	Automatically set Input channel voltage ranges
Manual Trigger	Set trigger to Manual arm mode
Arm Trigger	Initiate trigger threshold detection
Output	Turn output drive signal on/off

On-Line Status Monitors

Average count	Current number of frames averaged
Channel Status	RMS or peak levels for all active channels
Message log	Records all test operations, including operator commands, and reports on any error conditions

On-Line Analysis

Real-time displays	Any available function for all available channels may be displayed simultaneously.
Functions analyzed during the test	
Time	Windowed and un-windowed; Orbit
Auto spectra	Linear, Magnitude Squared, PSD
Cross spectra	Magnitude, phase, real, Imaginary
Transfer functions	Magnitude, phase, real, Imaginary, coherence; Bode
Statistical functions	Probability density, auto correlation, cross correlation
1/n Octave	1/1, 1/3, 1/6, 1/12, 1/24
Real-time/Stored data	Simultaneous display and overlay of spectra or time histories for real-time data and any stored data

Modal Data Acquisition

Modal DOF	Data stored and recalled according to modal DOF label
Auto increment	Automatic incrementing of modal DOF during acquisition. Acquisition can be linked to Modal Model visualization
DOF Table	Set up multiple tables of DOF numbers and directions for efficient management of modal data
Data storage format	CATS binary format, STAR binary, and Universal File Format

Transient Analysis

Frequency range (DC to)	25Hz to 10kHz; dependent on pulse duration and over-sample ratio. 20KHz optional
Functions	Acceleration, Velocity, Displacement, SRS (Primary+, Primary-, Maxi-max)
Frame size	Automatic selection of 512 – 32,768 samples, in powers of 2 steps
Reference profile	User-defined SRS reference

Data Storage

Format	Spectral Dynamics binary or Universal File Format
Setup options	Select from all available functions, new data file or append data to file
Playback	Automatic play of entire test data file, with adjustable display update delay; manual selection; select by input channel number.
Run message log	Text file records all system status messages displayed during test run

Export Manager (Optional)

File formats	ASCII, STAR™, I-DEAS™, MATLAB™, UFF, ZMOD, ROM, SIR-1000, TH, TIM, TPD, TRD

S P E C T R A L
D Y N A M I C S

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