A New Front-end, **WCA**mini
4-channel FFT analyzer

Specifications

■Input
Number of Input Channels : 4
  support TEDS IEEE 1451.4 Ver0.9 and Ver1.0
  Ver0.9 : acceleration ID=0, 1, 24 Microphone ID=12, 25
  Ver1.0 : acceleration ID=25 Microphone ID=27
Input Impedance : 1 MΩ
Input Coupling : AC, DC, ICP
Input Range : -20dB (141mV), 0dB (1.41V), +20dB (14.1V)
Trigger Source : Input Channel, External Input
Number of Tacho Channels : 1

■Analysis
Frame Size : 64, 128, 256, 512, 1024, 2048, 4096, 8192,
            16384, 32768, 65536
Frequency Range : 40kHz - maximum
Real-time Analysis Frequency : 20kHz
A/D Converter : 24 bits
Dynamic Range : 100dB

■Analytical Functions
Time Function, Time Averaging Function, Spectrum, Auto-power Spectrum, Complex Spectrum, Energy Spectrum Density Function, Power Spectrum Density Function, Cross Spectrum, Phase Spectrum, Transfer Function (H1, H2, H3, HV), Coherence Function, 1/1 ; 1/3 ; 1/6 ; 1/12 Octave

■Display Functions
Plot Window : Max. 16 window simultaneous display
Overlaying : Max. 8 trace (2D display)
Format : 2D display
        (Amplitude, Bode diagram, Nyquist diagram, Orbit),
        3D display
        (Spectrum map, Campbell diagram, Color spectrogram)

■Block Arithmetic Functions
+, -, *, /, Complex conjugate number, Discrete Fourier transform, Fast Fourier transform, Inverse discrete fourier transform, Inverse fast Fourier transform, Time-domain differentiation/integration, Frequency-domain differentiation/integration, Hilbert, Inverse Hilbert, Exponent, Logarithm, Natural logarithm, Amplitude, Phase, Square root, Trigonometric logarithm, Envelope, Averaging, Acoustic weighting, Smoothing, Interpolation, 1/1 ; 1/3 ; 1/6 ; 1/12 octave

■Throughput Functions
Time history data recording and playback and analysis (downsampling during playback is possible)

■Signal Generator
Number of Outputs : 1
Waveforms : Sine wave, Pure random, Band random
Waveform : Burst control, Lump control, Sweep control

■Order Tracking (Optional)
Processing : Constant ratio RPM tracking, Constant band RPM tracking, Order tracking analysis band width (frequency/order), Octave band tracking (1/1 ; 1/3 octave), Phase tracking, Cross spectrum, Transfer function, Spectrum map, Campbell diagram, Color spectrogram
Max. Analysis Order : 1600
Analysis Order Range : 6.25, 12.5, 25, 50, 100, 200, 400,
            800, 1600

■Real-time Octave Analysis (Optional)
Analysis Function : 1/1, 1/3, 1/6, 1/12 octave
Filter Method : Digital filter
Standards : 1/1 oct (ANSI S1.11, JIS C1513 Type II),
        1/3 oct (ANSI S1.11, JIS C1513 Type II)
Averaging : No averaging, Linear, Exponential, Peak
Time weighting : 0.001 to 1000 seconds

Windows XP/Vista are registered trademarks of Microsoft Corporation.
WCA is a registered trademark of A&D Company, Limited.
ICP is a registered trademark of PCB Piezotronics, Inc.
Dynamic range is subject to test conditions.
Specifications are subject to change without notice.

■Filtering (Optional)
Arbitrary frequency filter : Lowpass, highpass, bandpass or bandreject
Order filter : Bandpass or bandreject

■Operating Environment
〈Minimum Hardware Requirements〉
CPU : Core 2 Duo or Pentium M processor at 1.4 GHz or higher
Memory : At least 512MB
HDD : At least 20GB
Monitor : At least 800*600, 65,000 colors
USB ports : 2
When used with Vista, an internal/external DVD drive is necessary.
〈Recommended Hardware Requirements〉
CPU : Core 2 Duo processor at 2.0 GHz or higher
Memory : At least 2GB
HDD : At least 40GB
Monitor : At least 1024*768, 65,000 colors
USB ports : 3 or more
When used with Vista, an internal/external DVD drive is necessary.
〈OS〉
Microsoft Windows XP Professional
Microsoft Windows Vista Business/Ultimate
Microsoft Windows 7 Professional/Enterprise (32bit) (support from spring 2010)
● In Windows Vista, perform the following procedure using an account with administrative privileges.
  1. Right-click the shortcut for WCAPRO and then click Properties.
  2. Click the Compatibility tab, and then click Show settings for all users.
  3. Click Continue on the User Account Control dialog box.
  4. At the Compatibility for all users tab, check Run this program as an administrator under Privilege level.
  5. Click OK twice to close all dialog boxes.
〈Interface〉
USB 2.0 WCAmini front-end

■Dimensions/Weight
External Dimensions : 30(H)×139(W)×138(D) (unit : mm, excluding protuberances)
Weight : 330g
Power Supply : USB bus power, AC adaptor

30   156.5
18.5   138
139

WCA

(Unit: mm)

Ⓒ N92
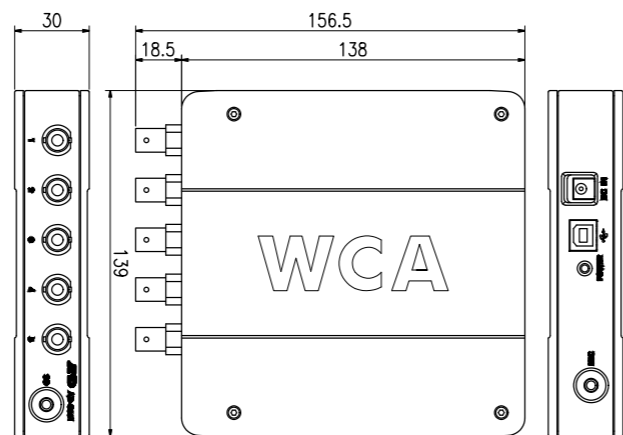
Compliance with Council Directives
CE This device features radio interference suppression and safety regulation in compliance with the following Council Directives.
Council directive 2004/108/EC EN61326 EMC directive
Council directive 2006/95/EC EN60950-1 Low voltage directive

A New Front-end, **WCA**mini
4-channel FFT analyzer

A simple and convenient World Class Analyzer (**WCA**)
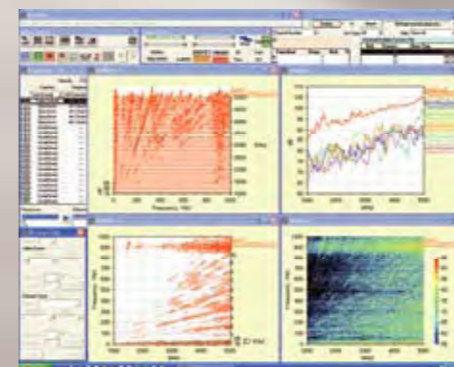
The Portable FFT —It goes where you go—

● Powered by USB (No AC adapter required)
● 24-bit, 4-channel measurement (TEDS compatible)
● A synchronous tachometer input
● Integral signal generator
● FFT analysis and throughput recording and playback analysis
● Order tracking analysis (Optional)
● Filtering function (Optional)
● Voice memo input and sound playback
● Includes WCA Lite (Optional easy-to-use analysis software)
● WCAPRO (Multi-analysis and measurement software)
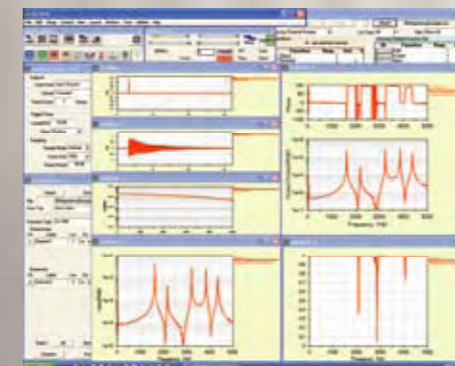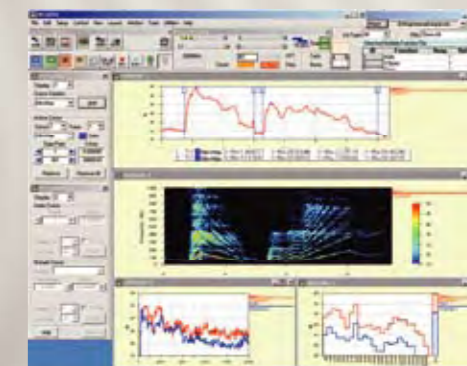
Transfer function measurement   Transient noise measurement

Tracking analysis   Time history waveform, recording and playback

● Appearances and/or specifications subject to change for improvement without notice.
● Contents of this catalog last updated January 2010.

＊WCAmini-ADCC-03-BP3-10102

WCAmini
Features

● **A portable and lightweight, USB bus powered unit**

The WCAmini is small and light enough to fit into your travel case. Power can be supplied from the USB bus, allowing you to perform noise and vibration analyses anywhere.

● **User-friendly GUI and WCA Lite with improved ease of operation**

With enhanced operability, the WCAmini has adopted the same design concept employed in the highly reputed WCA. WCA Lite will enable simple operation of FFT and tracking analyses.

● **Complete compatibility with the CompactWCA/ WCAonPC (AD3600 series)**

A compatible user interface eliminates the need for additional training of existing users. In addition, data analyzed in the past can still be utilized as data remains fully compatible because of the same MFU file format.
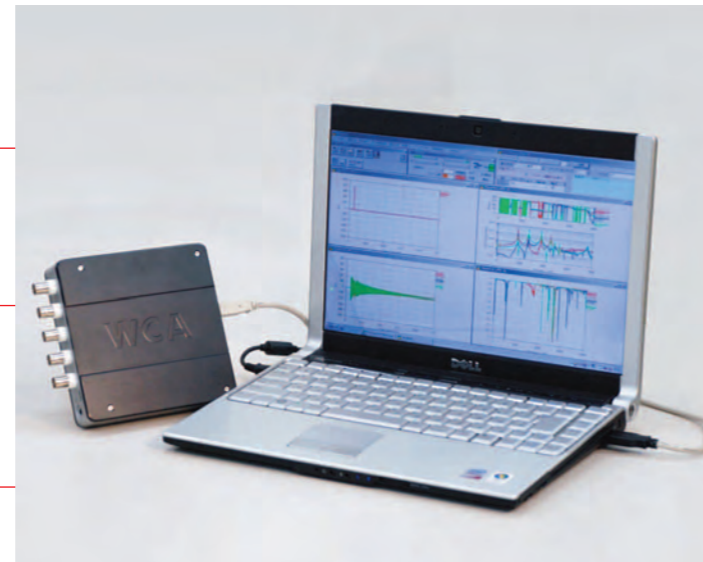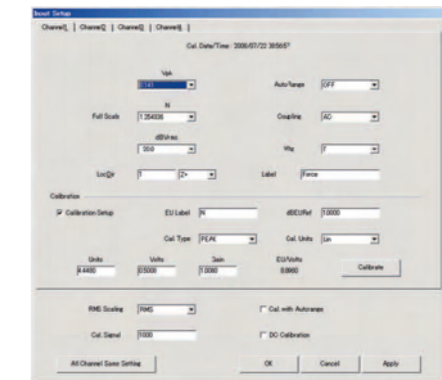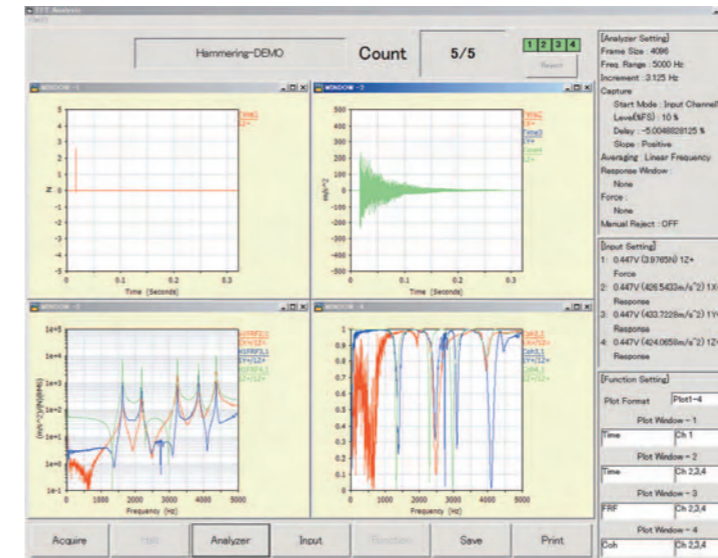

■ **WCAPRO, multi-analysis software**

WCAPRO has an easy-to-manage user interface that can be operated as a Windows application. WCAPRO provides real-time FFT analysis for noise & vibration testing. Optional licenses for integrating real-time octave analysis and tracking analysis are also available. The system comes standard with a throughput collection function that allows continuous recording of time history data on a disk and repeated playback analysis. Off-line playback analysis with a standalone PC is also possible (optional).
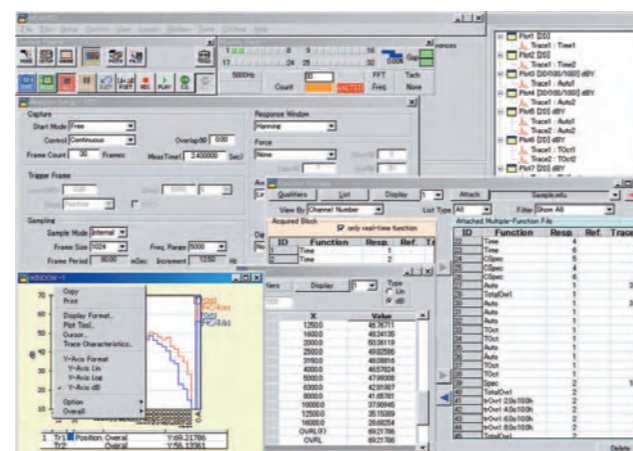
WCA Lite : FFT Analysis

Basic operations can be managed from 3 menus : "FFT Analysis," "Analyzer Setup" and "Input Setup"
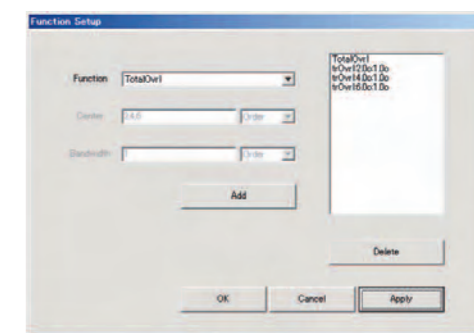

Data acquisition and storage can be performed while the WCA Lite remains open

Performing Recalling Analyzer Setup will display the contents of the analyzer setting and the input setting on the right of the WCA Lite screen. Data acquisition can be started immediately after analytical functions and graph display settings are managed in the function setting. The measurement conditions can be changed from the Analyzer Setup menu, which appears when the "Analyzer Setting" window or the "Analyzer" button is clicked. The input conditions can be changed from the Input Setup menu, which appears when the "Input Setting" window or the "Input" button is clicked. Clicking the "Print" button prints out information on the screen. The "Acquisition," "Halt," "Save" and "Print" buttons are each assigned a respective function key. Status displays of the average count during acquisition and the measurement channel overloading are located at the top of the WCA Lite screen.

WCA Lite : Tracking Analysis

Basic operations can be managed from 4 menus: "Tracking Analysis," "Analyzer Setup," "Input Setup" and "Acquisition Function Setup"


Data acquisition and storage can be performed while the WCA Lite remains open

Performing Recalling Analyzer Setup will display the contents of the analyzer setting and the input setting on the right of the WCA Lite screen. Data acquisition can be started immediately after analytical functions and graph display settings are managed in the function setting. The measurement conditions can be changed from the Analyzer Setup menu, which appears when the "Analyzer Setting" window or the "Analyzer" button is clicked. The input conditions can be changed from the Input Setup menu, which appears when the "Input Setting" window or the "Input" button is clicked. The tracking function can be changed from the Acquisition Function Setup menu, which appears when the "Function" button is clicked. Clicking the "Print" button prints out information on the screen. The "Acquisition," "Halt," "Save" and "Print" buttons are each assigned a respective function key. The status displays of the RPM during acquisition and the measurement channel overloading are located at the top of the WCA Lite screen.

Overview of Analysis Functions

●FFT Analysis

A variety of FFT function analyses are available for real-time processing or post-processing with a time history data file. The 65536 frame size support has made possible frequency analysis at 1/25600. The WCAmini provides FFT analysis features that are necessary for vibration and noise analysis, such as spectrum average function, hammering excitation and transfer function measurement with an exciter.
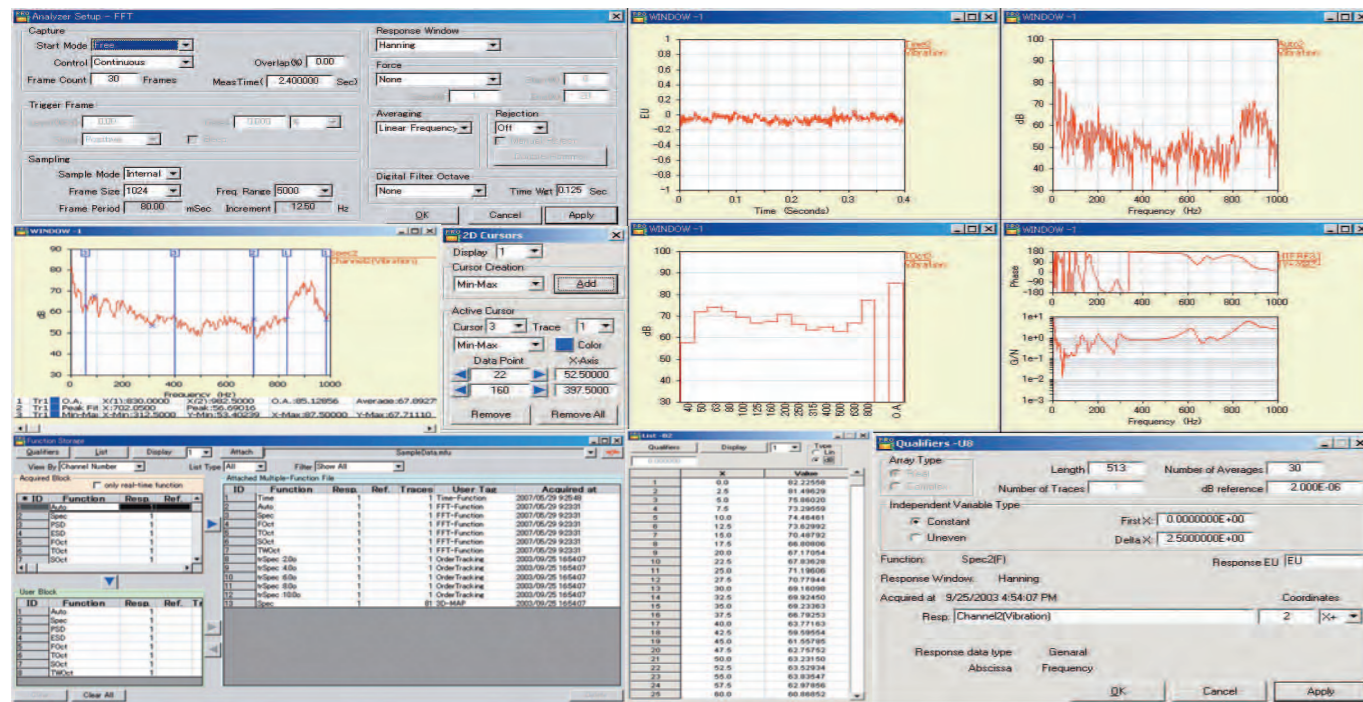

●Real-time Octave Analysis (Optional)

Octave analysis utilizing the digital filter method is available for real-time processing or post-processing with a time history data file. Simultaneous measurements with FFT analysis or tracking analysis are also possible.
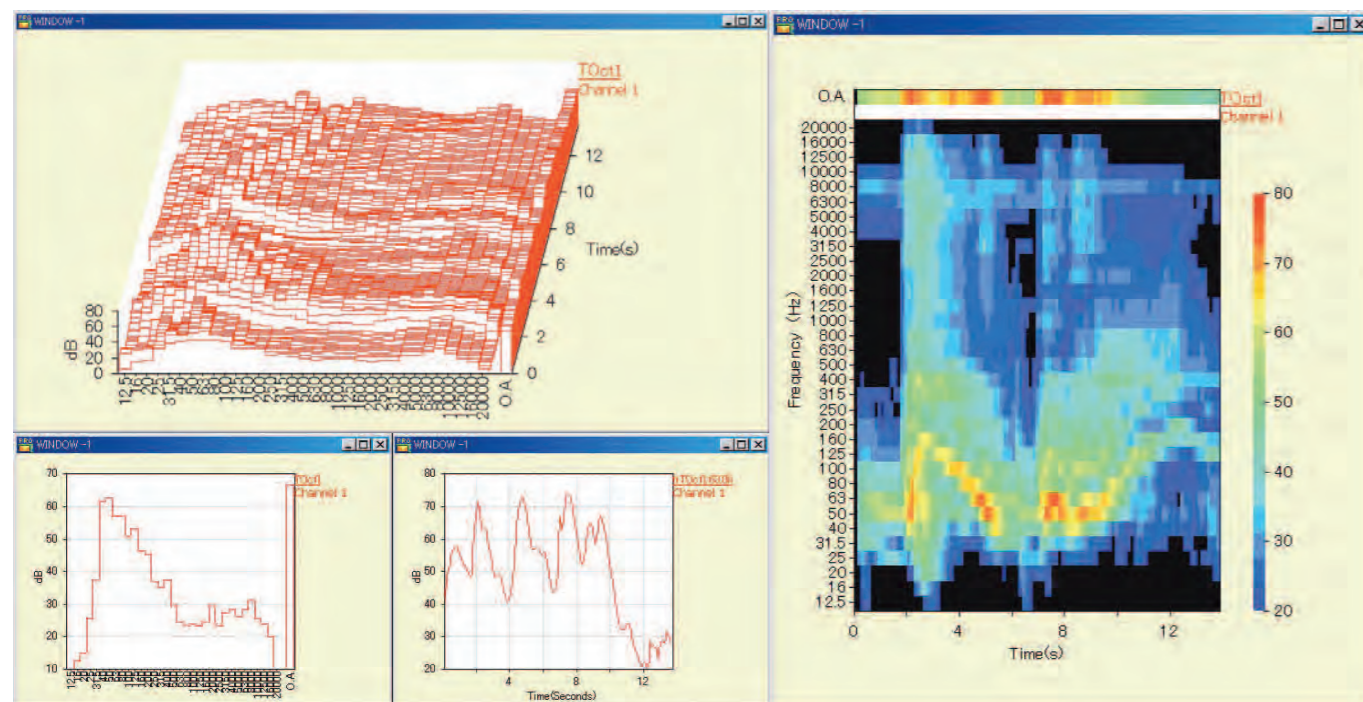

●Tracking Analysis (Optional)

Tracking analysis is available for real-time processing or post-processing with a time history data file. The WCAmini supports different analysis modes such as 2D tracking, which processes orders in real-time, and 3D tracking, which displays a 3D map. It also provides a variety of functions such as constant ratio tracking, constant band tracking, time tracking, phase tracking, averaging and smoothing.

A multi channel setting can be easily performed using a table format in the 2D tracking function setting. Arbitrary analysis details can be defined by setting the main substance unit: order / frequency, bandwidth unit: order / frequency. Tracking points can be selected using minimum, maximum or average RPM.

The WCAmini supports 3D map representation in Campbell diagram display mode and color spectrum display mode, and order slice using a 3D cursor. In addition, it can collectively process selected orders from a 2D tracking function table.
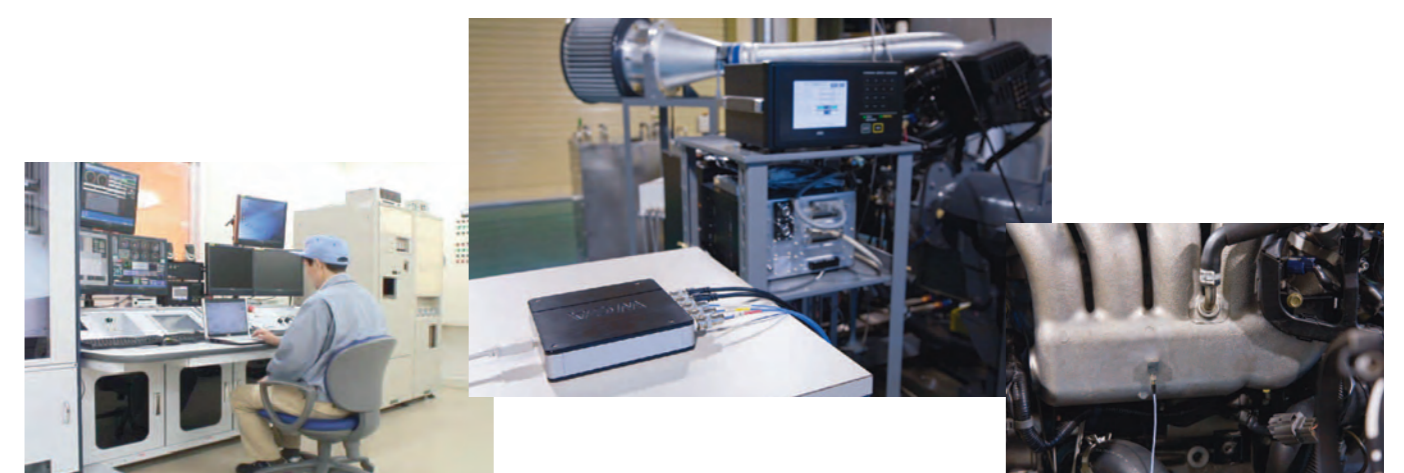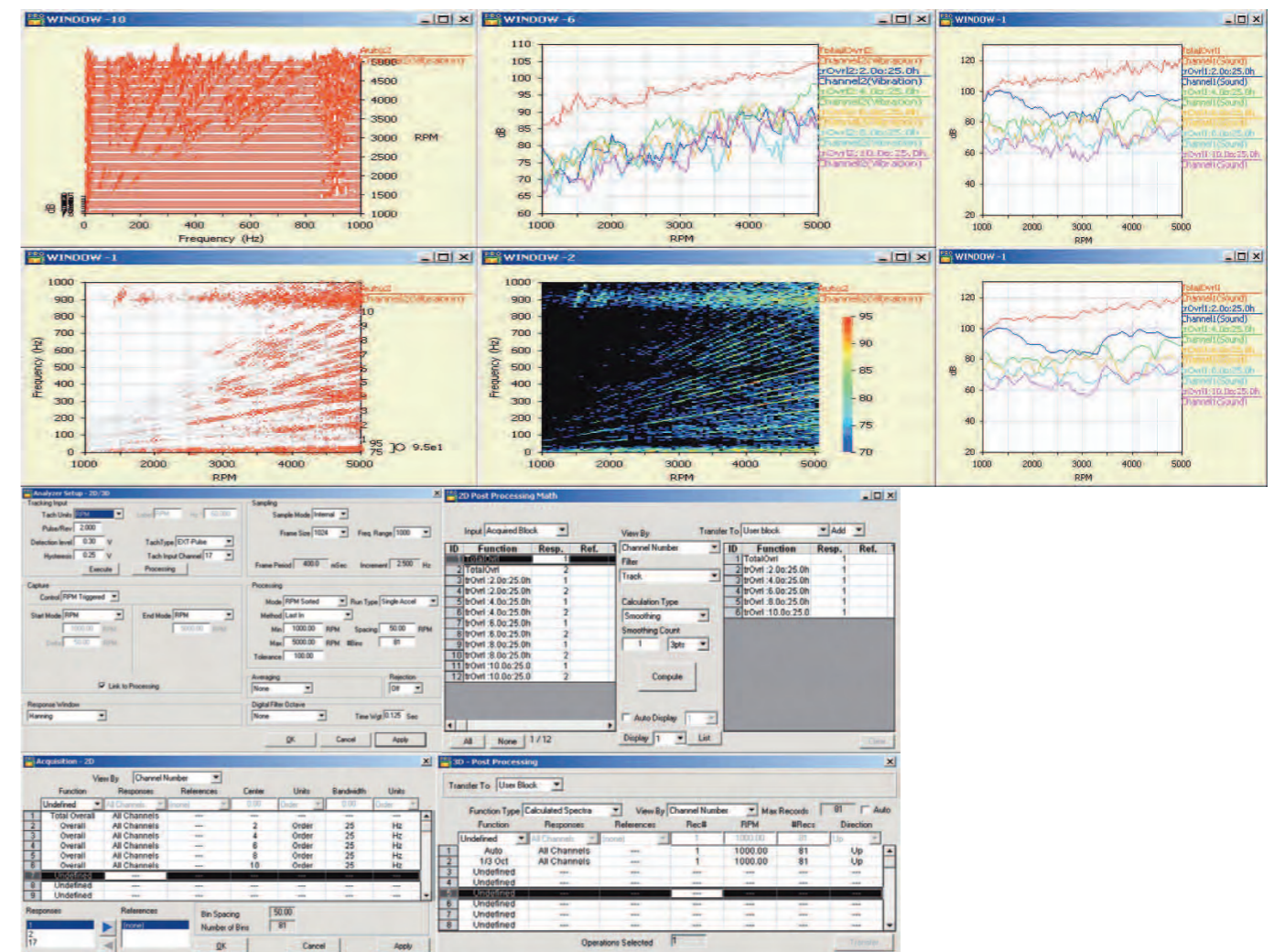
Overview of Analysis Functions

### ●Filtering (Optional)

The WCAmini supports digital filter processing with lowpass, highpass, bandpass or bandreject for post-processing with a time history data file.
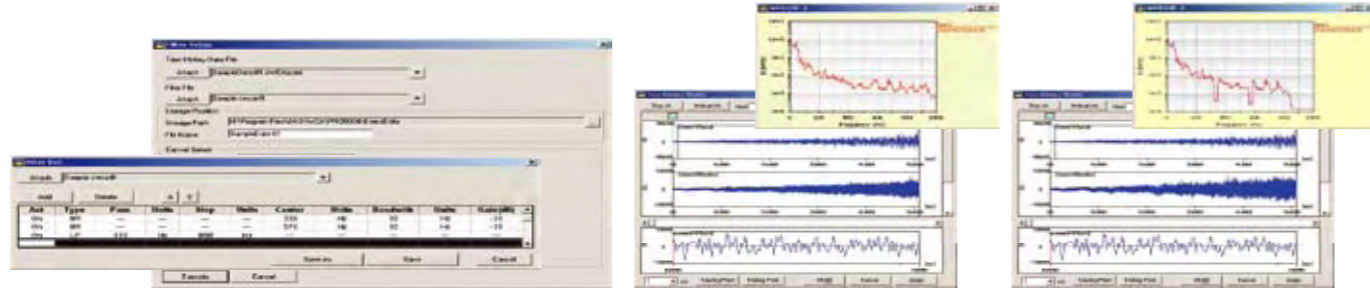

●Basic Features and 2D Post-processing

Graph display with measurement data and analysis data (MFU files), list display (Lin / dB), cursor display (2D / 3D), data save and recall feature (analyzer conditions, plot conditions, MFU files), printout (graph / list), meta file output graph, copying and pasting lists, and calculation to 2D data (envelope curve / averaging / smoothing / weighting / differentiation / integration / interpolation / phase inversion / phase matching) are supported.
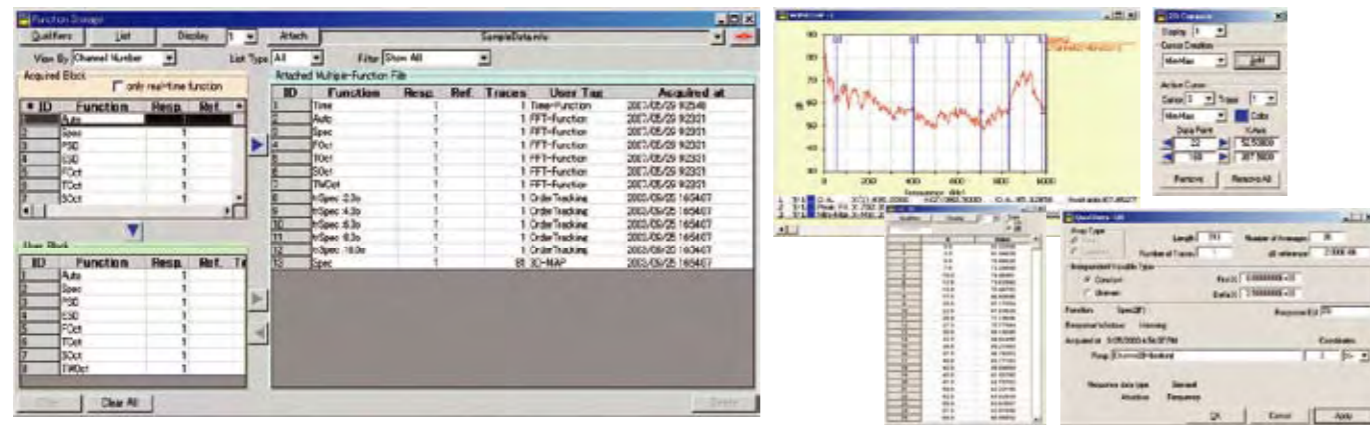

●3D Post-processing (included in tracking features)

Post-processing calculation is available for 3D data (MFU file / block data). A variety of calculation features, such as selection from order / frequency data (main substance unit: order / frequency, bandwidth unit: order / frequency), 2D data selection from selected RPM or record, function transformation (converting from spectrum map to octave map), averaging, weighting differentiation or integration are supported.
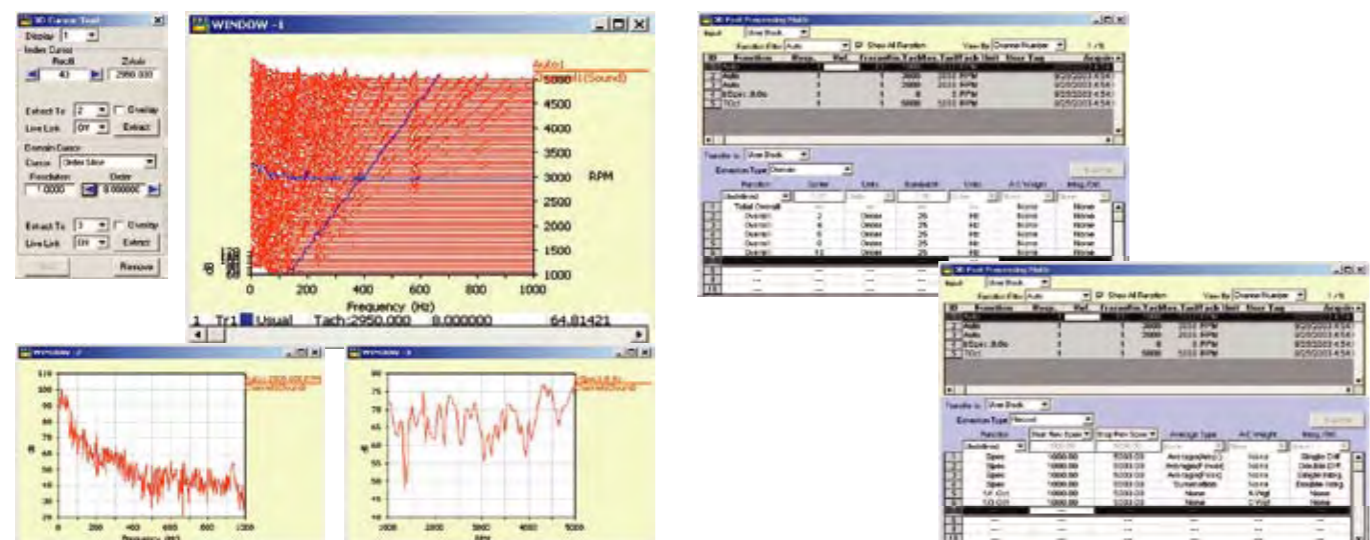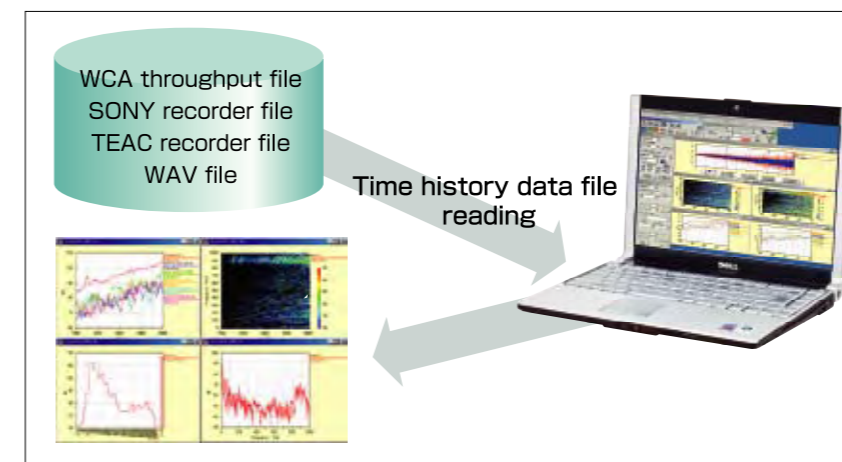

Throughput to Disk

Throughput recording of time history data on the hard disk of a PC is supported. Playback analysis of the data is also possible. In addition, using the all point display and the enlargement display of time history data, it is possible to observe the long-time data or to specify an analysis range. The recorded throughput data can be exported in a WAV file. It is possible to downsample data recorded in a range of 1kHz - 40kHz during playback. Note: Up to 8 frequency ranges that are 1/integer part of the recorded frequency range may be selected, however data recorded in a range of 12.8kHz are excluded.
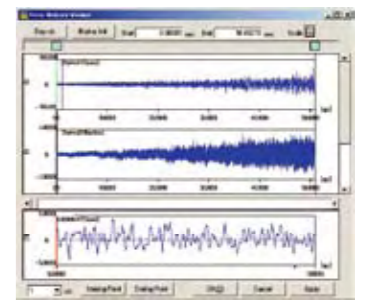

WCAPRO's Off-line Post-processing Analysis Features

WCA throughput file
SONY recorder file
TEAC recorder file
WAV file

Time history data file reading

Off-line analysis using a standalone PC is also available with an off-line license.
FFT analysis, tracking analysis, real-time octave analysis and time history filter processing are available for time history data, which is recorded using the throughput function. The WCAPRO also supports time history data from data recorders manufactured by other analyzer vendors.
In addition, a layered display with the analyzed data file (MFU file), a value reading using the cursor and 2D/3D post-processing calculation are also available.

ME'scopeVES, Experimental Modal Analysis / Acoustic Analysis Software

ME'scopeVES* makes it easier to process experimental analysis of vibration and acoustic problems in machinery and structures.
Operating deflection shape (ODS) analysis, experimental modal analysis, structure modifications and acoustic analysis.
ME'scopeVES can directly read a data file (MFU file) measured by the WCAmini.
There is an option available to control the WCAmini directly from ME'scopeVES.
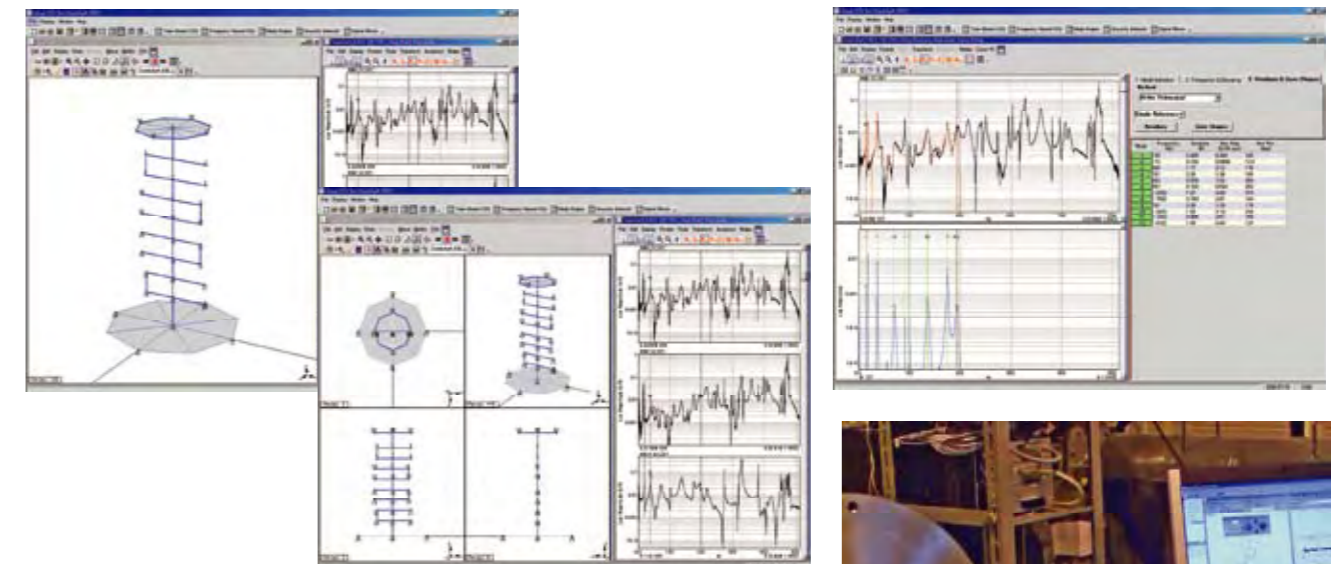
*ME'scope VES is a product of Vibrant Technology, Inc.