LARSON DAVIS
A PCB DIVISION

MODEL 831-FFT

FFT FREQUENCY ANALYSIS

- Hand-held, single-channel, FFT measurement
- ISO 1996-2 Annex C tonality
- Wide dynamic range
- Used for transient and continuous signals
- Real-time operation (no data loss)
- Up to 6400 lines of analysis
- Resolution down to 0.016 Hz
- Utility software for archiving and viewing data

TYPICAL APPLICATIONS

- FFT analysis of sound & vibration
- Tone detection
- Run-up, run-down
- Machinery troubleshooting
- Product development
- Rumble and rattle of HVAC installations
- Road and rail traffic signature
- Quality control

FFT WITH 831-FFT FIRMWARE

When you need more frequency resolution than 1/3 octave band spectral analysis can provide, Model 831 FFT Frequency Analysis is the ideal solution. The Fast Fourier Transform (FFT) algorithm is implemented in the Model 831 for precision spectral analysis of acoustic signals. By utilizing a variety of frequency span and resolution settings, FFT acquisition settings can be adjusted to tune into specific acoustic and vibration phenomena.
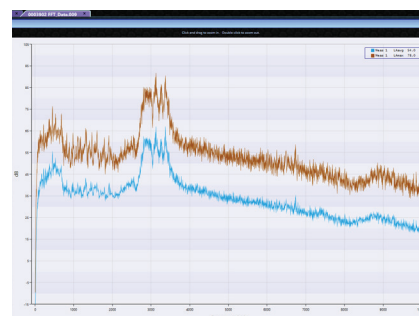
Model 831-FFT has three operational modes serving the different applications. "Count" mode accumulates the average spectrum and maximum for a fixed number of FFT spectra. The "Timed" mode repeats the count mode for a given period of time and accumulates the spectra in a history. The "Timed" mode is best suited for transient signals while the "Manual" mode is typically used for steady state measurements. In manual mode the number of averages is open and each Start-Stop sequence adds an entry to the history table.

Up to 6400 lines of resolution are available with Model 831-FFT allowing for detailed measurement analysis. Users can field upgrade their Model 831 with FFT Analysis utilizing G4 LD Utility Software (supplied).
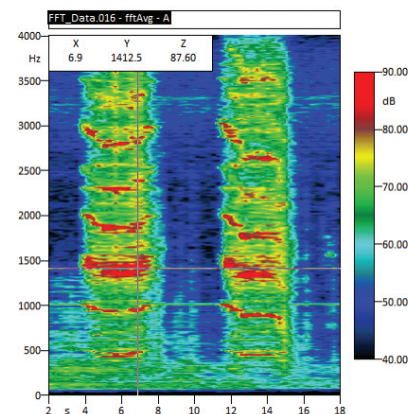
SPECIFICATIONS

831-FFT with Model 831 Complies with the Following Standards

IEC 61672-1:2002 Class 1 Electroacoustics - Sound level meters

Fast Fourier Transform (FFT)

Frequency span	100, 200, 500, 1 000, 2 000, 5 000, 10 000, 20 000 Hz
Number of FFT lines	400, 800, 1 600, 3 200, 6 400
FFT Window	Hanning, Flattop, Rectangular
Frequency weighting	Z, A, C
Measurement control modes	Manual, Count, Time
Frequency range	3 Hz to 20 kHz
Overlap processing	Automatic, up to 67%
Displays	Live Broadband SPL, Live FFT, Overall Average & Maximum FFT, and History of Averages & Maximum FFT (in dB)
Cursor mode	Manual or Maximum Tracking
Harmonic cursor	Yes, 4 to 24 Harmonic Indicators
Cursor zoom factor	Full Spectrum 6 400 Lines to 120 Bars to 1 Line Per Bar, in Factors of 2
Output	Magnitude
Tonality	ISO 1996-2 Annex C

Data Management

Storage of data on Model 831 – Number of Measurements Limited Only by Memory

Export of Data to LD G4 Utility, MS Excel, DNA, and SDK

LD G4 Utility Program

Control of Model 831 for Run/Stop, Data Storage, Status, Clock Set, and Firmware Upgrade

Configuration Setup and Setup Manager for Different Instruments

Download of Data Files for FFT, RT, and SLM Mode

View Data Plots for FFT Data in Overlay of Average and Maximum

Screengrabber Function to View Model 831 on PC Screen

Ordering Information

831-FF or 831-RI	Model 831 Sound Level Meter with Class-1 Pre-polarized Precision Condenser Microphone (50 mV/Pa), Preamplifier (PRM831), Accessory Kit (831-ACC)
831-FFT Upgrade	Model 831 Sound Level Meter. FFT Mode. Does Not Require Any Other Options. *DSP Revisions Must Be 0.5 or Greater*
CAL200	Class 1 Acoustic Calibrator with User Selectable Output of 94 or 114 dB at 1 kHz
EXC025	Microphone Extension Cable, 5 pin Switchcraft, 25 ft (8 m)
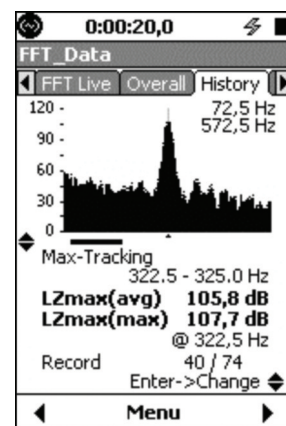
FFT Max-tracking on Model 831

SLM-Utility G4 FFT Data Report

DNA Software FFT-Spectrogram of Stone-Cutting Operation

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