



FFT Analysis and Simultaneous Waveform Recording

Using the FFT Analysis Program SX-A1FT for the RIONOTE Multifunction Measurement System enables FFT analysis of sound and vibration as well as various other types of voltage signals, while at the same time recording them as WAVE files. The resulting WAVE files can later be re-analyzed with the FFT Analysis Program SX-A1FT. Alternatively, using the Waveform Processing Software AS-70 on a computer enables detailed analysis including sound pressure level and vibration level processing, FFT analysis, octave band analysis and more. The FFT analysis results can be displayed on the RIONOTE unit. To eliminate the need for extended cabling, the Wireless Dock SA-A1WD can be used to transmit the microphone or accelerometer signals to the RIONOTE unit.

System Diagram



Equipment configuration

Product	Model
Multi-function Measuring System (2 channel/4 channel FFT package)	SA-A1FTB2/SA-A1FTB4
Wireless Dock	SA-A1WD
2 channel/4 channel Amplifier	SA-A1B2/B4
SD card (512 MB/2 GB/32 GB)	MC-51SD1/20SD2/32SP3
Sound Level Meter, Vibration Meter, Microphone, Piezoelectric Accelerometer etc.	
Waveform Analysis Software (only required when performing analysis on a computer)	AS-70
Computer (only required when performing analysis on a computer)	

[Limitations on FFT analysis and simultaneous waveform recording]

- Program version 2.1 or later is required
- Number of analysis points must be 8192 or less (8192, 4096, 2048, 1024, 512, 256)
- At an averaging count of 1024 or lower, recording time limitations apply
 Example: At a frequency range setting of 20 kHz and 8192 analysis points, the maximum recording time is 163.84 seconds
 Calculation equation: $1 / (\text{frequency range} \times 2.56) \times \text{number of analysis points} \times \text{averaging count} = 1 / (20000 \times 2.56) \times 8192 \times 1024 = 163.84$
- Separate SD cards are required for the RIONOTE unit and the amplifier (SA-A1FTB2/SA-A1FTB4)
 This applies also if the amplifier is docked to the RIONOTE unit
- The signal from the tachometer input cannot be recorded

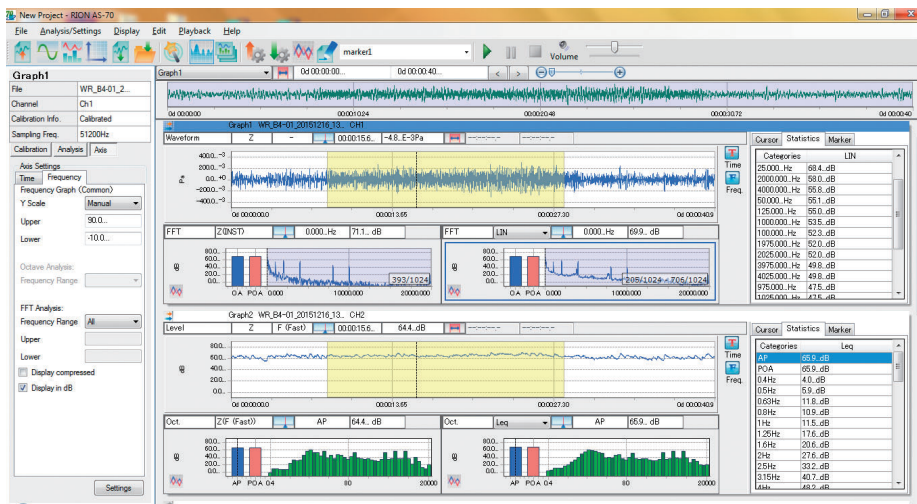
Measurement result examples



Sample screen for FFT analysis and waveform recording with SX-A1FT



Sample screen for waveform analysis with SX-A1FT



Sample screen for waveform analysis with AS-70

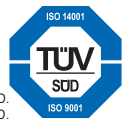
Application examples

- Vibration measurement and FFT analysis for machine equipment
- Sound pressure measurement and FFT analysis for machine equipment
- Detailed machine equipment diagnosis
- Simultaneous FFT analysis of sound/vibrations during vehicle acceleration and rpm measurement



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