Vibration Training with Low Cost Tools

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VIATC TRAINING CONFERENCE & EXPO
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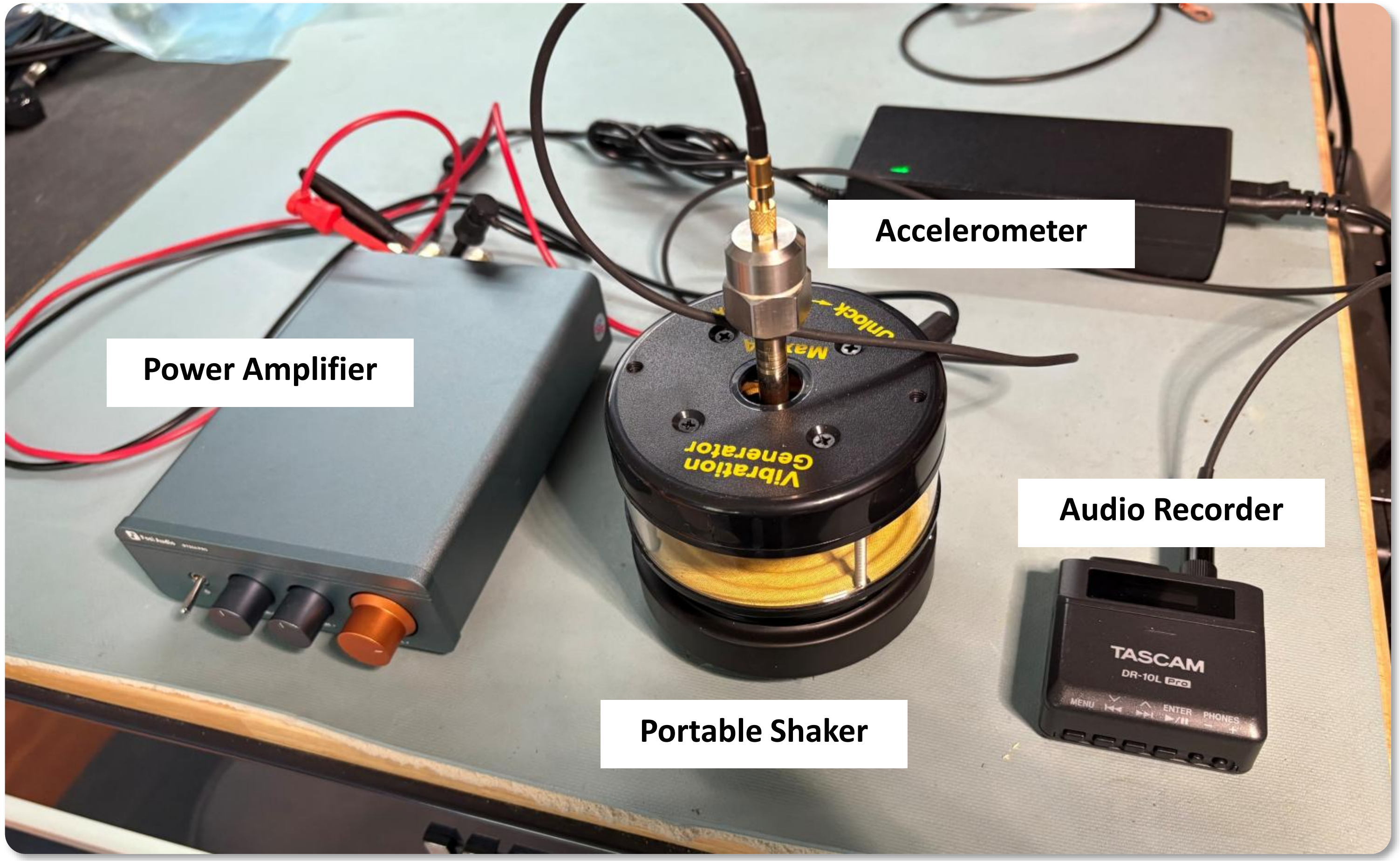
2026 *Annual Training Conference and Exposition*

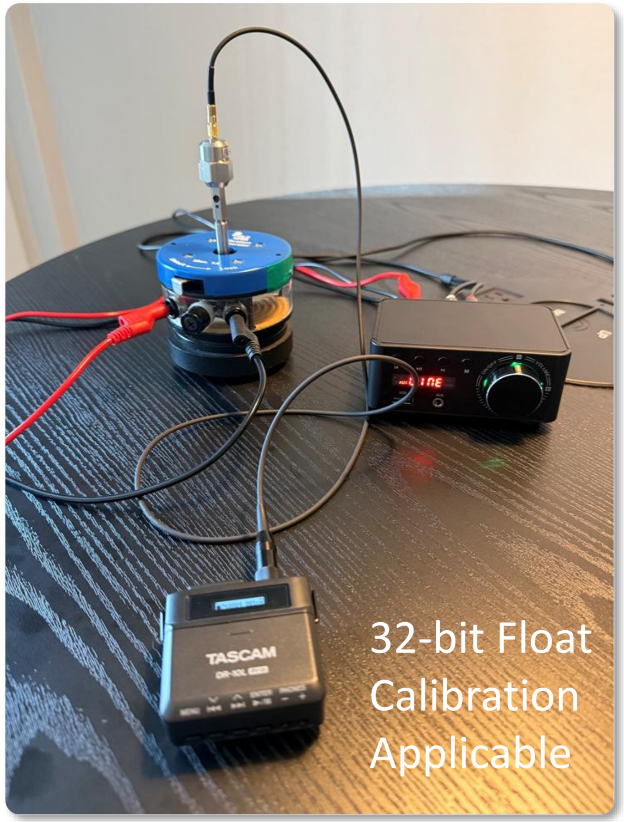
Example Low Cost System

< $1,000

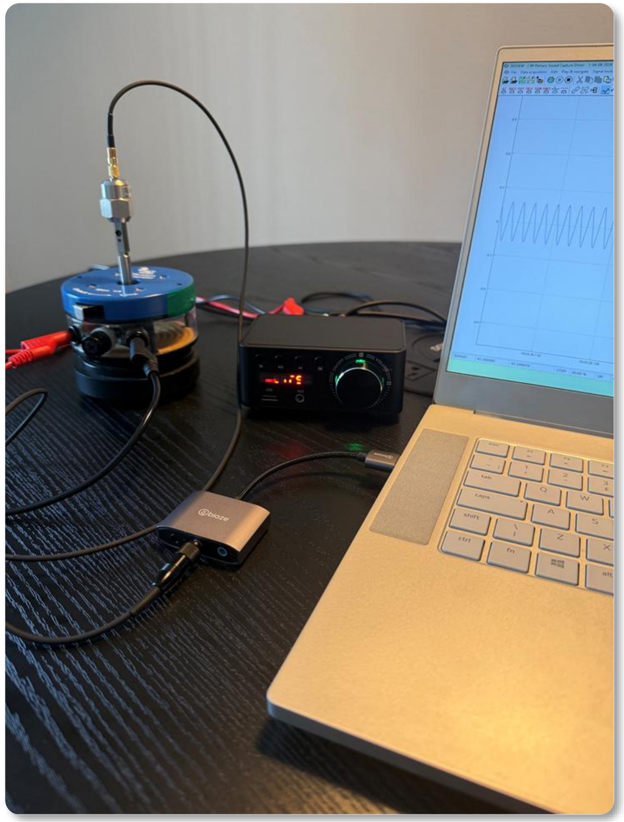


- Relatively Cheap
- Portable
- No Shipping Logistics / Custom Concerns
- Simple for Basic Tasks / Covers Fundamentals
- Accessible to All Students

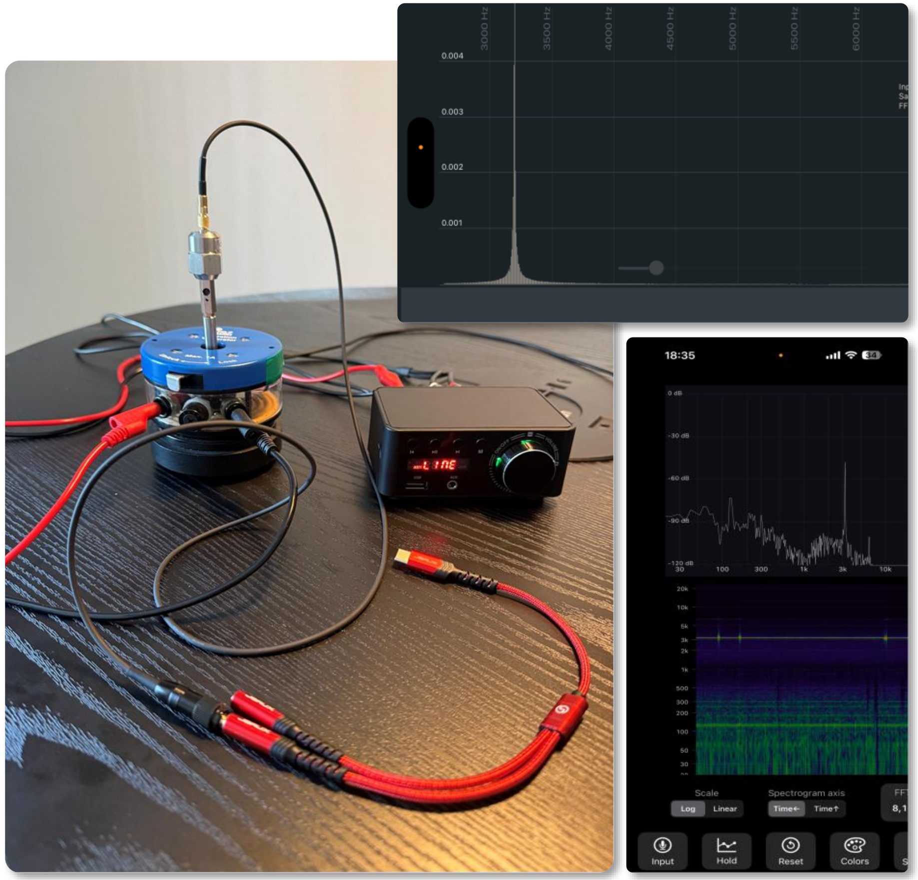
Data Capture & A/D Conversion



Audio Recorder
(3.5 mm Mic Input)



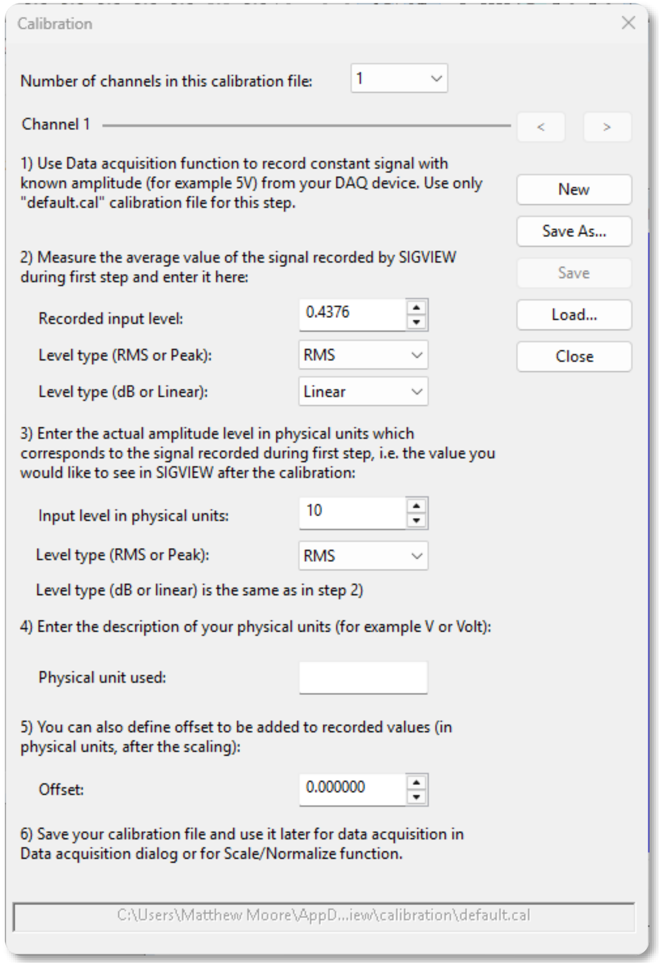
USB Sound Card
(3.5 mm Mic Input)



USB-C Phone Input
(3.5 mm Headphone / Mic Splitter)

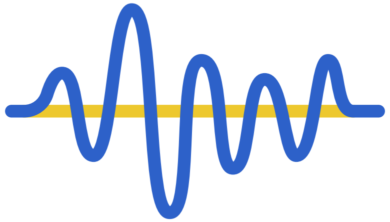
System Calibration (Optional)

Calibrated Vibration Signal
10 mm/s rms & 159.2 Hz

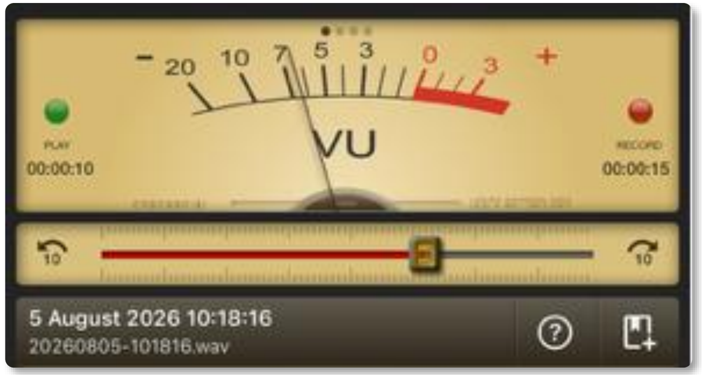


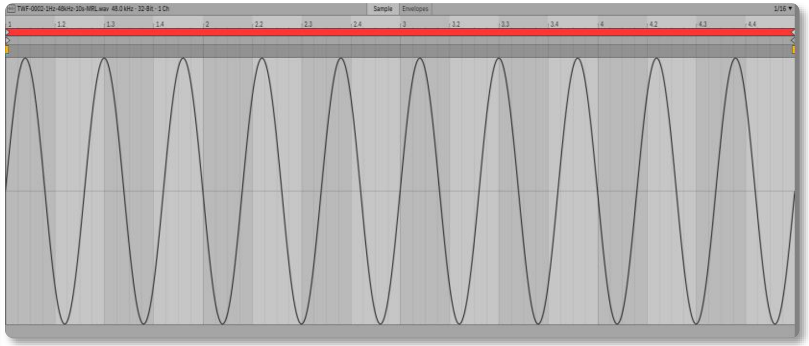
Calibration File Scales Future Measurements

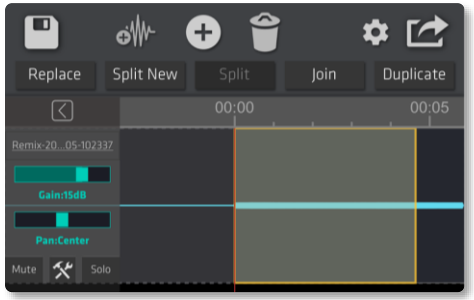
WAV Format

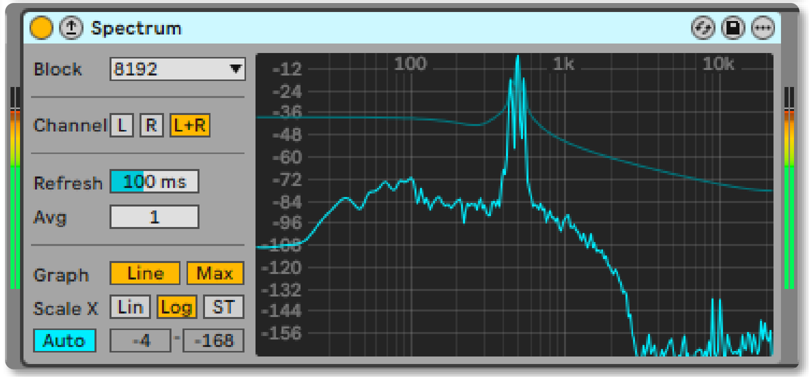


- Time waveform format
- High sample rate of 44.1 kHz or 48 kHz
- Up to 24 kHz vibration Fmax
- Audio applications or equipment
- Voice recorder apps
- Music production apps / software
- Any phone app using mic input
- Mix, edit, combine
- Note: Audible Fmin 20 Hz (lower frequencies achievable on shaker)

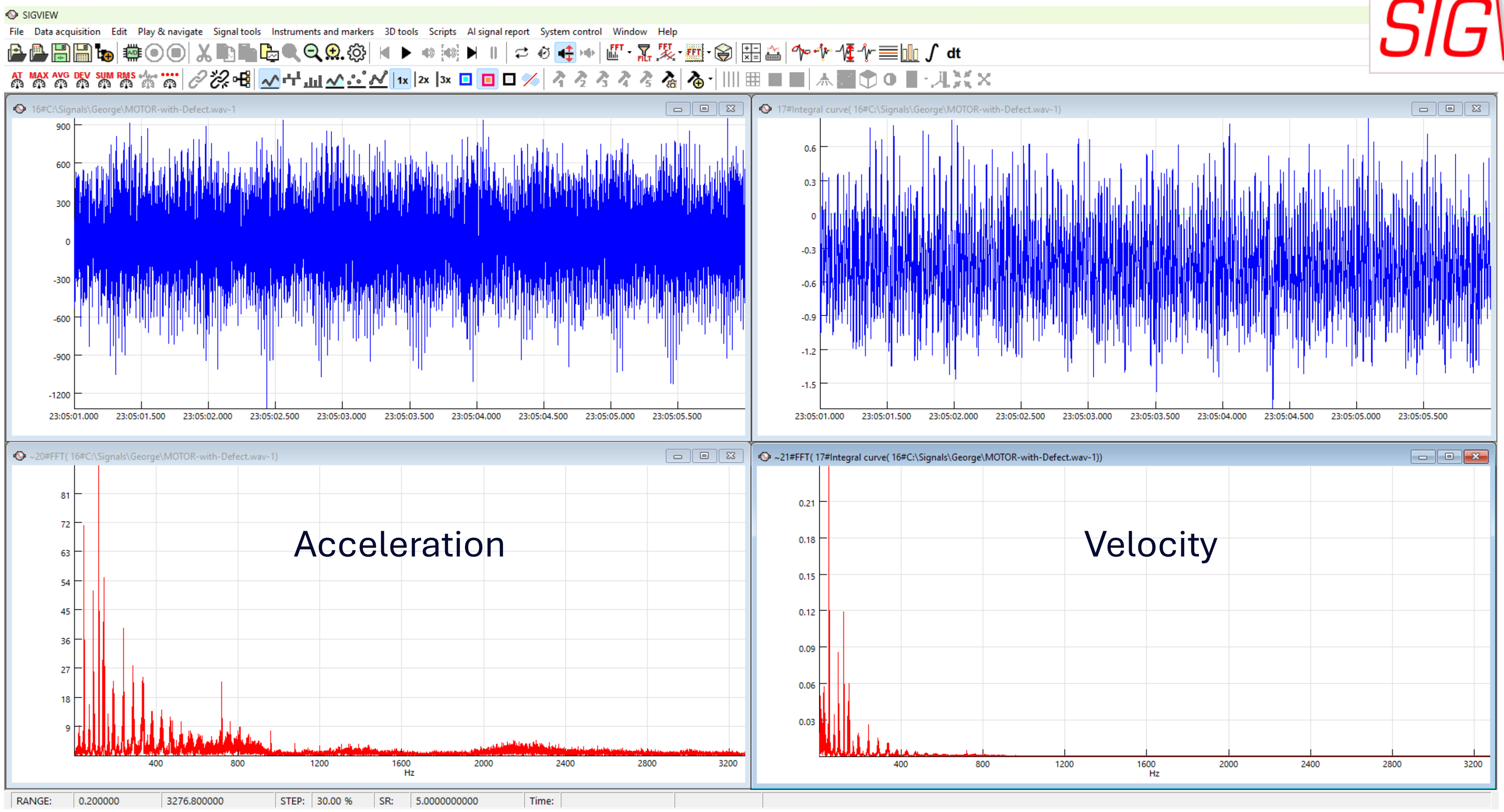






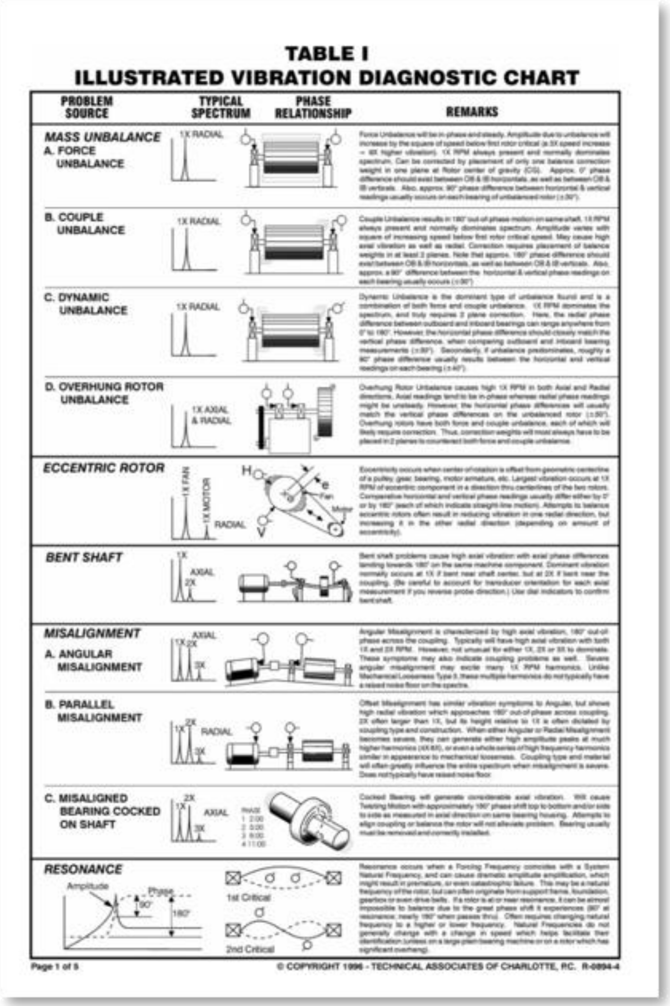


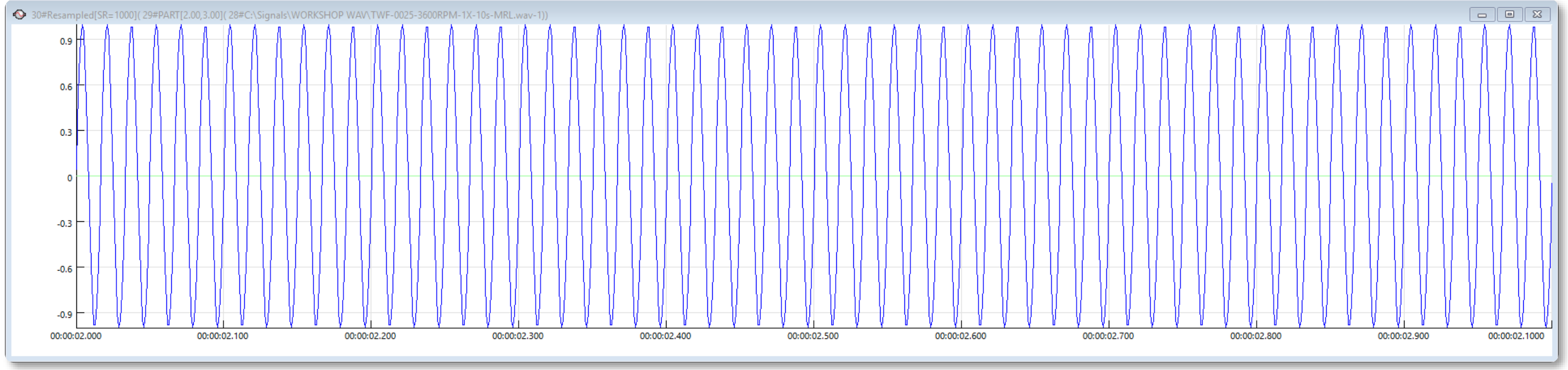
Signal Processing Software

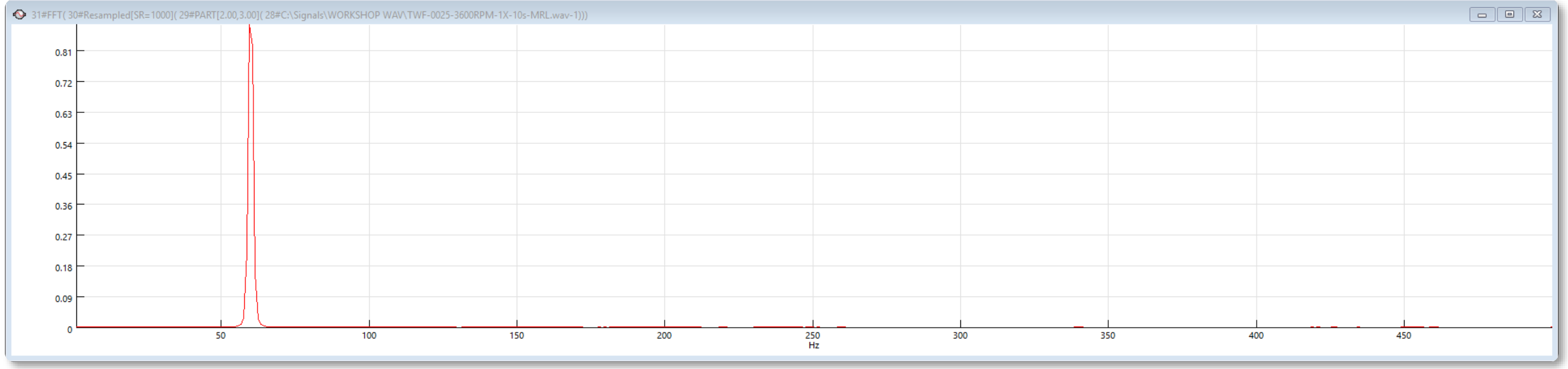


- Sampling
- Time Waveform
- Resampling
- Scaling
- Calibration
- Filtering
- Integration
- FFT Spectrum
- Averaging

Example Simulated Fault – Unbalance

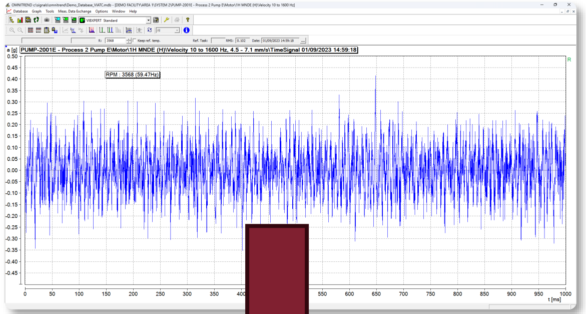


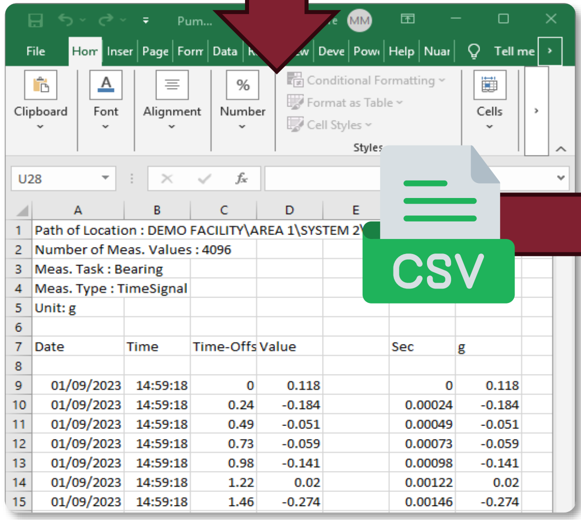




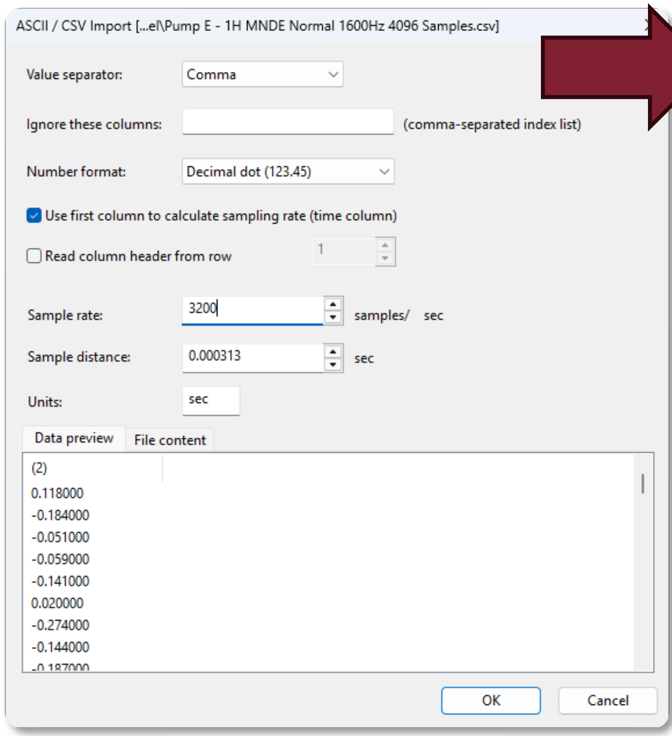
Real Machine Vibration

- Signal Processing Software (CSV Import)



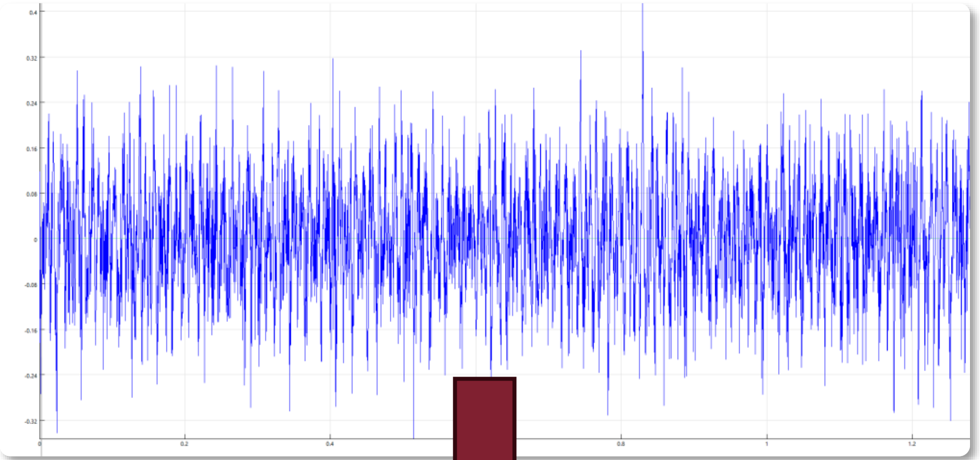


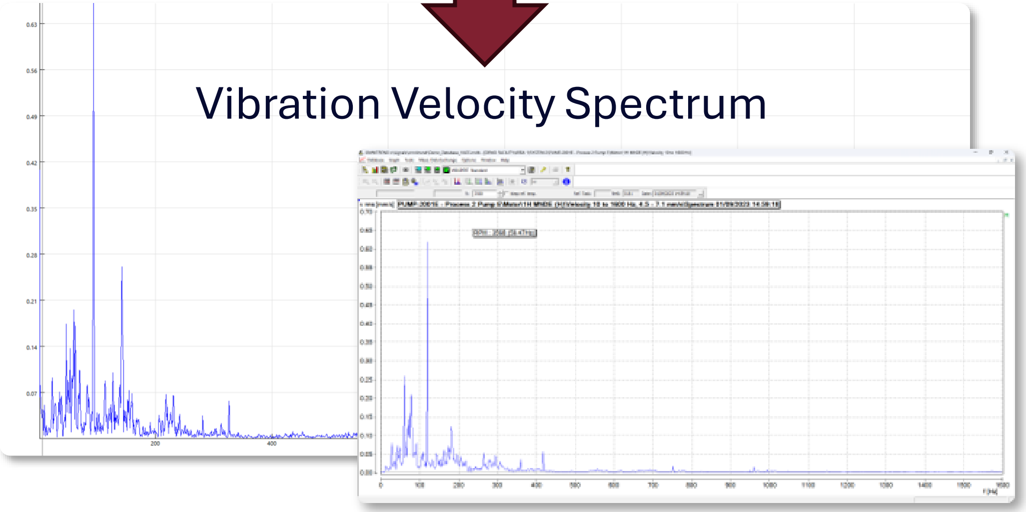
	A	B	C	D	E		
1	Path of Location : DEMO FACILITY\AREA 1\SYSTEM 2\						
2	Number of Meas. Values : 4096						
3	Meas. Task : Bearing						
4	Meas. Type : TimeSignal						
5	Unit: g						
6							
7	Date	Time	Time-Offs	Value		Sec	g
8							
9	01/09/2023	14:59:18	0	0.118		0	0.118
10	01/09/2023	14:59:18	0.24	-0.184		0.00024	-0.184
11	01/09/2023	14:59:18	0.49	-0.051		0.00049	-0.051
12	01/09/2023	14:59:18	0.73	-0.059		0.00073	-0.059
13	01/09/2023	14:59:18	0.98	-0.141		0.00098	-0.141
14	01/09/2023	14:59:18	1.22	0.02		0.00122	0.02
15	01/09/2023	14:59:18	1.46	-0.274		0.00146	-0.274



CSV Import

Integrate time waveform if measured in g





Vibration Velocity Spectrum

Training Setup