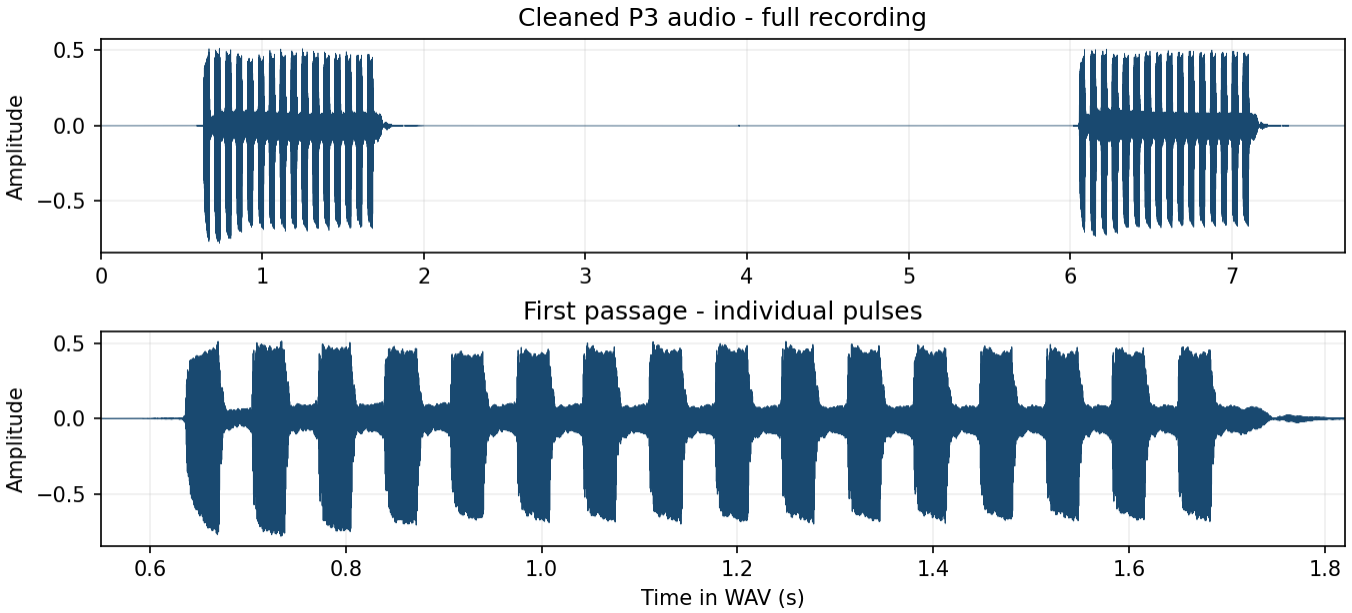
CASIO MD-120 | P3 Buzzer Acoustic Measurements

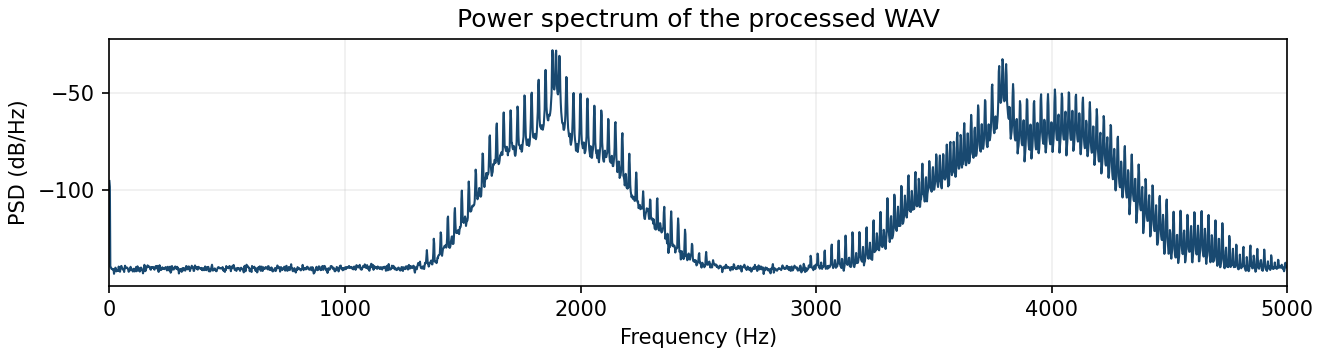
Xandrian Labs / 7 November 2026 / Measured from archived, noise-reduced audio

Source and scope

Source: **ch14p3_Buzzer_Sound.wav**, prepared from the Canon PowerShot G15 recording MVI_2833.MOV of the MD-120 running the P3 buzzer demonstration. All timings below refer to the processed WAV timebase. The report characterizes the recorded acoustic signal only.

Property	Measured value
Audio format	PCM 16-bit; mono; 16,000 samples/second
Recorded duration	7.700 seconds
Distinct audible passages	Two: approximately 0.64-1.69 s and 6.06-7.11 s
Detected pulses	16 per passage (32 total)
Mean pulse-onset interval	67.3 ms in each passage (about 14.85 pulses/s)
Pulse onset interval range	65-70 ms at 5 ms analysis resolution
Mean above-threshold pulse width	37.2 ms in each passage (threshold-dependent)
Mean between-pulse quiet interval	30.0 ms (threshold-dependent)
Prominent spectral peaks	~1.88-1.91 kHz and ~3.79 kHz





Measurement method and limitations

Pulse boundaries were identified using 5 ms RMS windows with an amplitude threshold of 0.15 on the normalized, processed WAV. Counts and onset intervals are stable across reasonable thresholds; ON/OFF durations vary with threshold and processing. Spectral peaks were estimated by Welch power spectral density (8192-sample windows). The WAV was band-pass filtered (approximately 1.65-2.15 and 3.50-4.20 kHz), softly noise-gated, normalized, and cropped; therefore its relative spectral levels and envelope do not represent the unprocessed microphone signal.

The near-doubling of the prominent spectral peak (~3.79 kHz versus ~1.9 kHz) is consistent with harmonic content. This acoustic recording does not by itself establish electrical drive waveform, piezo type, firmware timing source, or exact electrical duty cycle.