

Figure S1: Annotated target spectra from each class used for validation. The at resonance (R) targets are sorted by resonance frequency ( $f_0$ ), the below resonance (B) targets are sorted by TS at 40 kHz, the above resonance (A) targets are sorted by TS at 25 kHz, and the fluid-like (F) targets are sorted by TS at the center frequency, 32.5 kHz.

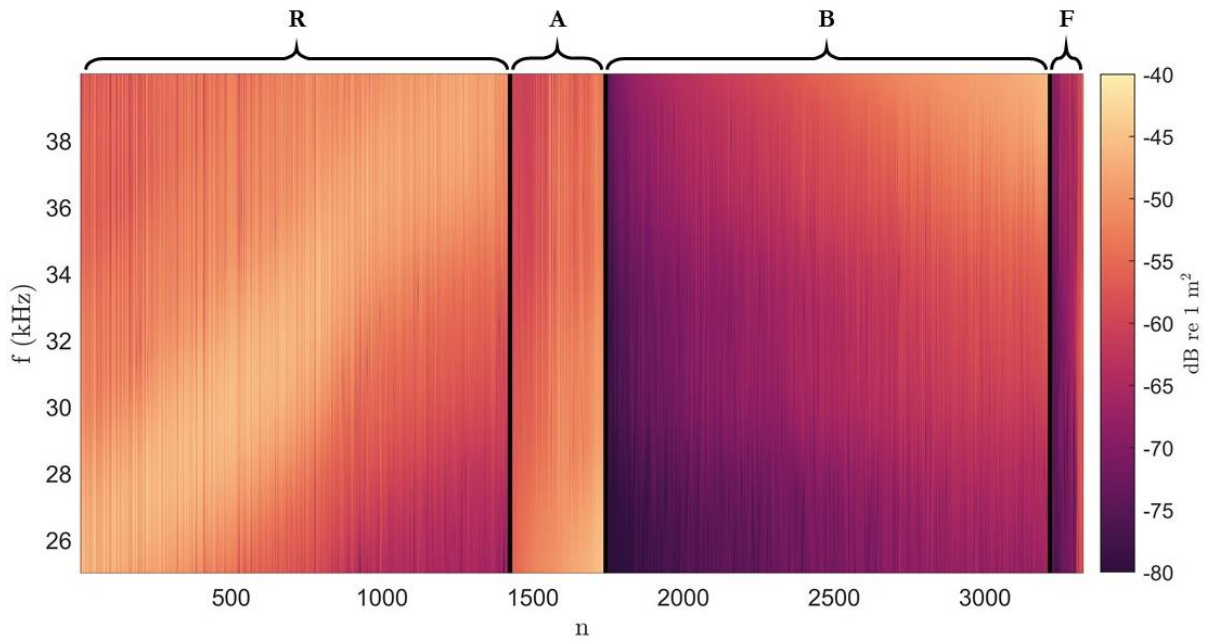


Figure S2: All target spectra sorted by their assigned classification. The at resonance (R) targets are sorted by resonance frequency ( $f_0$ ), the below resonance (B) targets are sorted by TS at 40 kHz, the above resonance (A) targets are sorted by TS at 25 kHz, and the fluid-like (F) targets are sorted by TS at the center frequency, 32.5 kHz.