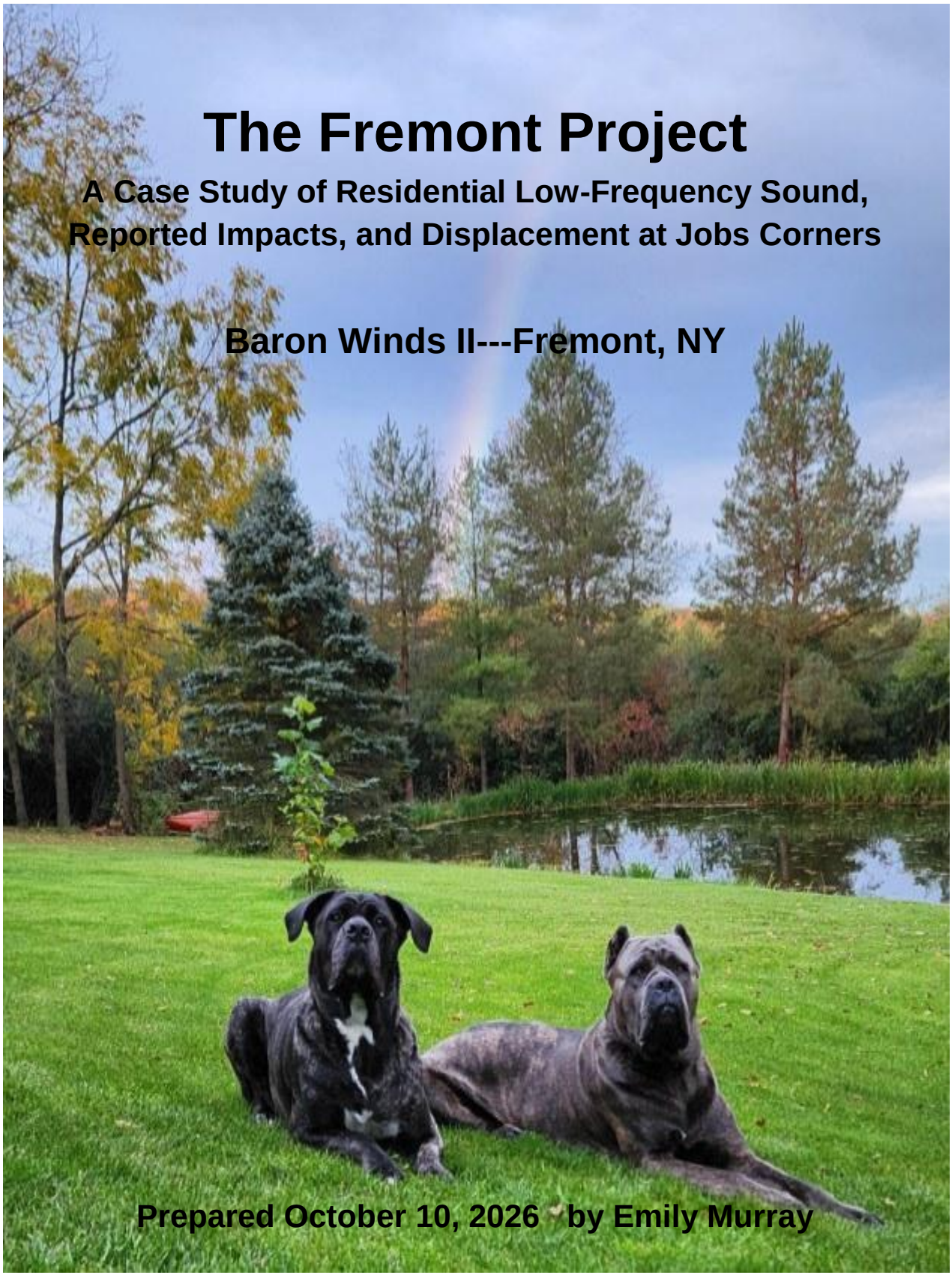
The Fremont Project

A Case Study of Residential Low-Frequency Sound, Reported Impacts, and Displacement at Jobs Corners

Baron Winds II---Fremont, NY



Prepared October 10, 2026 by Emily Murray

The Fremont Project

Introduction and Purpose

This report documents the conditions experienced at my residence following the commencement of operations at the Baron Winds II Wind Turbine Project in Fremont, New York. It examines the resulting residential impacts, complaint history, sound and atmospheric-pressure measurements, and unresolved questions concerning low-frequency sound, infrasound, turbine operations, and post-construction monitoring.

The purpose of this report is to bring together documented observations, independent monitoring data, available project information, and relevant technical research to provide a clearer understanding of the conditions being reported. Particular attention is given to the measurement methods and frequency ranges used during the investigation and whether they adequately address the concerns raised by affected residents.

The circumstances in Fremont also raise broader questions regarding the adequacy of existing regulatory standards and post-construction monitoring requirements, particularly where very-low-frequency pressure fluctuations may not be fully characterized by conventional A-weighted sound measurements.

Through this examination, I seek an independent, comprehensive technical investigation that addresses the conditions experienced at my residence, evaluates the available evidence, and provides meaningful answers to the questions that remain unresolved.

Project Background and Residential Setting

Baron Winds II is a utility-scale wind energy project located in the Town of Fremont, Steuben County, New York. The project was approved through New York State's Article 10 siting process and includes 26 Vestas V150 wind turbines approximately 650 feet in total height.

The Town of Fremont participated extensively in the Article 10 review process and raised concerns regarding potential impacts to residents, local land use, sound, setbacks, and overall project compatibility. The project ultimately received state approval and proceeded to construction.

The turbines became operational in late 2025. Following the commencement of operations, residents reported concerns involving sound, pressure sensations, sleep disturbances, ear-related symptoms, and other physical effects. Some of these concerns resulted in formal complaints and requests for additional investigation.

My own experience changed dramatically after Baron Winds II became operational. I had lived in my home for approximately 14 years without experiencing comparable symptoms. In addition, I had worked around other wind energy projects in the region for approximately 15 years without experiencing similar effects.

Following the energization of Baron Winds II, I began experiencing recurring physical symptoms at my residence. Over time, I observed a pattern in which the intensity of these symptoms varied with wind direction and apparent turbine operating conditions. The symptoms became increasingly severe, eventually making it impossible for me to continue living in my home. On January 21, 2026, my partner, Nick, our two large dogs, and I relocated from the property.

Although I serve as Town Supervisor for the Town of Fremont, this report is prepared and submitted in my personal capacity as a private citizen and affected resident. The observations, measurements, and concerns presented are my own and do not represent official findings or positions of the Town of Fremont.

My role as Town Supervisor is relevant to my participation in the project's Article 10 review process and related communications. However, my personal experiences, independent monitoring, and requests for further investigation are separate from my official Town responsibilities.

Chronology of Reported Conditions and Displacement

I began experiencing changes at my residence toward the end of December 2025. Prior to construction, I understood that living near the project might involve some audible turbine noise or shadow flicker. I did not anticipate that I would ultimately become unable to remain comfortably in my own home.

By late November 2025, I had observed that the closest turbine had been energized. My initial reaction was actually one of relief because I did not consider the turbine particularly loud from my home.

Around December 20, 2025, I began experiencing significant ear pressure, persistent ringing, and discomfort. Shortly after Christmas, the turbines stopped rotating, and my symptoms temporarily subsided. When turbine rotation resumed, the symptoms returned.

On January 3, 2026, I was working in my upstairs loft office when the pressure in my ears became increasingly difficult to tolerate. I also experienced a strong fight-or-flight type sensation and felt that I needed to leave the house. Importantly, there are no windows in that portion of the house from which I can see the turbines, and the issue I was experiencing was not simply an objection to seeing or hearing them.

As I left the property, I contacted an RWE representative. During the days that followed, I submitted complaint information and attempted to work with RWE to understand what was happening.

At one point, the three closest turbines were shut down temporarily to determine whether conditions changed. I experienced some improvement, although the problem did not completely resolve. I also began observing that when turbine operation appeared reduced, the symptoms I experienced seemed less intense.

During January 2026, turbine operations were intermittent at times. These changes provided periods during which I could compare how I felt under differing operating conditions.

As January progressed, I noticed another pattern: the basement of my home appeared to provide considerable relief compared with the main living areas and upstairs portions of the house.

Because I was having significant difficulty sleeping, I moved my bed and computer into the basement. I also sought medical attention during this period for significant ear pain and fluid in my ears. I was sleeping poorly and having increasing difficulty carrying out my normal responsibilities at work and for the Town.

During the same period, my partner, Nick, began reporting symptoms of his own, including confusion and anxiety-like sensations, although at that time he was uncertain whether they were related to conditions at the property.

On January 12, Nick left the property for several days and returned on January 16. During this period, we drove through the surrounding area and visually confirmed that the turbines we observed were not rotating. Nick reported being able to resume normal activities at the house, while I continued spending much of my time in the basement because I was still having difficulty tolerating the upper levels.

On January 17, 2026, at approximately 3:24 p.m., Nick experienced chest tightness while upstairs with our dogs. At approximately the same time, our female dog, Zelda, began drooling heavily and appeared visibly unsettled. Nick immediately left the property with both dogs. As he drove through the surrounding wind project, he visually confirmed that turbines were rotating. After leaving the area, Nick reported that his chest tightness subsided and Zelda settled.

Following that experience, Nick began paying closer attention to whether similar symptoms occurred under particular conditions at the property. At various times, he reported chest sensations, difficulty concentrating, visual-focus problems, anxiety-like sensations, and ringing in his ears.

These observations document the experiences of both occupants of the residence and provide additional information for evaluating the conditions reported during January 2026.

Early Testing

During December 2025 and January and February 2026, I had access to monitoring equipment borrowed from a colleague, including a Scarlet Class 1 sound level meter and an INFRA20-19PA Infrasound Monitor. I used both instruments inside and outside the residence to better understand the conditions we were experiencing.

The Scarlet Class 1 sound level meter generally did not display elevated overall sound levels during the periods I observed. The turbines were often not prominently audible inside the house, particularly during winter when the windows were closed. Outdoor measurements were complicated by wind striking the microphone, making it difficult to distinguish environmental sound from wind-related measurement effects.

The INFRA20 Infrasound Monitor provided a different perspective by recording variations in atmospheric pressure. As I continued monitoring, I observed pressure fluctuations that raised further questions about the conditions occurring at the property, particularly those not readily characterized by the overall sound-level readings.

My monitoring began as an effort to document the conditions we were experiencing, identify recurring patterns, and gather information that could assist a more comprehensive professional investigation.

As January progressed, my symptoms became increasingly difficult to manage. They occurred not only inside the main living areas but also at times on the porch and in the driveway. I documented severe ear pressure and ringing, muscle tightening and spasms, and intermittent chest discomfort.

I subsequently sought medical evaluation, including cardiac monitoring, as these symptoms continued to interfere with my daily activities and ability to remain comfortably at the property.

Relocation from the Residence

On January 21, 2026, Nick and I relocated from our home with our two dogs to temporary lodging.

During February, we stayed in temporary accommodations, traveled on a previously scheduled vacation, and subsequently returned to the area. While away from the property, the ringing in my ears gradually diminished over approximately five days, and my sleep improved considerably.

Between temporary accommodations, we were required to spend approximately one night and one day at our Fremont residence.

After returning to the house, I began experiencing repeated coughing and a sensation of congestion while upstairs. Within several minutes of moving to the basement, these symptoms noticeably diminished. When I returned upstairs, they reappeared. The ringing in my ears also returned, and Nick again reported chest tightness and anxiety-like sensations.

I contacted an RWE representative, explained our temporary housing situation, and requested that turbine operations be reduced during the period we were required to stay at the residence. I was subsequently informed that the request could not be accommodated.

The following morning, at approximately 5:30 a.m., I developed left-sided chest pain after several minutes of showering upstairs. I left the upstairs area and returned to the basement, where the discomfort subsided.

Unable to comfortably remain in the house, and with our next temporary accommodation not yet available, we spent much of that day away from the property, including several hours sitting in our vehicle in temperatures near or below zero.

By this point, the situation had fundamentally altered our daily lives. We were changing where we slept, limiting the time spent inside our home, and arranging our days around the conditions we experienced at the property.

On March 1, 2026, we moved into another temporary residence, which became our longer-term living arrangement and where we continue to reside as of this writing.

The difference between our Fremont home and our temporary residence has been substantial. Our Fremont property includes approximately 12 acres enclosed by an invisible fence, providing our dogs with space to exercise freely. Our temporary residence has only a small backyard, requiring the dogs to be walked outside, including throughout the winter months.

Despite these significant changes to our living arrangements, we have generally been able to sleep and function much more comfortably while away from our Fremont home.

As of October 2026, we have remained displaced from our residence since January 21, 2026. During this period, we have monitored wind direction and wind speed using Windy.com to help identify conditions under which returning to the property may be more tolerable.

Based on our observations, easterly winds and winds from due south have generally been associated with more tolerable conditions at our residence.

These conditions have occasionally allowed us to return to the property. We have also identified nighttime periods when turbines were not rotating or appeared to be operating at reduced levels, allowing us to bring our dogs home for exercise and spend limited time at the residence.

These return visits have provided valuable opportunities to compare our physical experiences with wind direction, wind speed, observed turbine activity, and atmospheric-pressure measurements recorded by the Raspberry Boom instruments.

Because both instruments record continuously, including when we are away from the property, we can examine the pressure measurements before, during, and after our visits. This allows us to compare periods when symptoms occur with periods when conditions are more tolerable.

These observations and measurements provide a basis for investigating recurring relationships among wind direction, turbine activity, atmospheric-pressure fluctuations, and the symptoms experienced at our residence.

RSG Post-Construction Monitoring at the Residence

Resource Systems Group, Inc. (RSG) is an acoustical and environmental consulting firm that performed sound modeling and noise analysis for the Baron Winds project during New York State's Article 10 permitting process.

RSG prepared portions of the project's pre-construction noise assessment, including modeling predicted turbine sound levels at nearby residences and evaluating anticipated compliance with applicable sound limits.

RSG provided technical acoustical analysis for the project applicant. The New York State Siting Board was responsible for reviewing the application and ultimately issuing the project certificate.

Following the commencement of turbine operations and the complaints reported at our residence, RSG became involved in post-construction sound monitoring.

The monitoring equipment was initially installed outdoors, with additional equipment subsequently installed inside the residence.

I specifically questioned the RSG representative about the equipment's ability to measure very-low-frequency sound and infrasound, including whether a microbarometer was being used. I explained that my primary concern involved the pressure-related sensations we were experiencing rather than conventional audible noise.

When I asked about the equipment's lower frequency range, I was informed that the microphone being used had a lower frequency limit of approximately 10 Hz.

This raised a significant question regarding the scope of the investigation. Equipment with an effective measurement range beginning at 10 Hz cannot reliably characterize pressure fluctuations occurring below that frequency. Understanding whether these lower-frequency conditions were present at the residence was central to the concerns I had reported.

Over the following weeks, I continued seeking clarification regarding the monitoring methods, the information being collected, and how the investigation would address our reported conditions. With these questions unresolved, and while we remained displaced from our home, I ultimately requested that the monitoring equipment be removed.

Formal DMM Complaints

On February 22, 2026, I filed my first formal complaint through the New York State Department of Public Service's Document and Matter Management (DMM) system.

I sought an investigation that would address the conditions we were experiencing, including the possibility of very-low-frequency atmospheric-pressure fluctuations and their relationship to the conditions reported at our residence.

On March 25, 2026, I submitted an additional complaint requesting access to the sound-testing information and independent review by New York State.

RWE subsequently provided the RSG report. My review identified limited discussion of measurements below 10 Hz, the frequency range that had become central to my concerns. The report primarily addressed compliance with the Town of Fremont's sound law and applicable Article 10 certificate conditions.

Regulatory compliance is an important part of post-construction monitoring. However, determining compliance with specified sound limits and fully characterizing the conditions being reported inside a residence are distinct investigative questions.

What was occurring at the residence during the periods when these reported effects were being experienced, including at frequencies below those evaluated during conventional sound-compliance testing?

To better understand this question, I began researching the science of sound, measurement instrumentation, applicable regulatory standards, and the limitations of conventional sound testing. This research became the foundation of my independent effort to document and investigate the conditions at my home.

While I am not a professional acoustical engineer, I have a technical background and have approached this investigation through careful observation, documentation, measurement, and research. My objective is to present the information collected, identify questions that remain unresolved, and encourage qualified professionals to independently evaluate the conditions being reported.

Understanding Sound, Low-Frequency Sound, and Infrasound

Sound consists of pressure fluctuations that travel through a medium such as air.

When something vibrates, such as a speaker, an engine, or a wind turbine blade, it creates changes in the surrounding air pressure. These changes travel outward as waves.

Frequency describes how many times a pressure wave completes a cycle each second. Frequency is measured in hertz (Hz).

For example:

1 Hz means one complete pressure cycle per second.

10 Hz means ten complete pressure cycles per second.

100 Hz means one hundred complete pressure cycles per second.

Generally, higher frequencies are perceived as higher-pitched sounds, while lower frequencies are perceived as deeper sounds.

The term infrasound generally refers to frequencies below approximately 20 Hz.

The 20 Hz value is not an absolute boundary between physical pressure fluctuations and their absence; rather, human hearing sensitivity decreases substantially at very low frequencies. Pressure fluctuations can therefore be physically present even when they are not perceived as a recognizable tone

Where Wind Turbines Fit In

Large wind turbines generate sound and pressure fluctuations across a broad range of frequencies, including low-frequency sound and infrasound. These can originate from airflow around the rotating blades, repeated blade passage near the tower, turbulence, mechanical equipment, and changes in turbine operating conditions.

The acoustic conditions reaching a nearby residence can vary depending on wind direction, wind speed, atmospheric conditions, terrain, distance, turbine operating conditions, and the simultaneous operation of multiple turbines.

Understanding A-Weighted Sound Measurements

Most environmental sound testing reports results in **dBA**, or A-weighted decibels.

The easiest way to understand A-weighting is to think of it as a **filter**.

Human hearing is more sensitive to some frequencies than to others, particularly less sensitive at very low frequencies. A-weighting mathematically adjusts measured sound levels to reflect that frequency-dependent sensitivity

In simple terms:

Type of Sound	What A-weighting Does
Mid-frequency sound, where human hearing is sensitive	Given relatively greater importance
Low-frequency sound	Reduced
Very-low-frequency sound/infrasound	Reduced very substantially

Therefore, a dBA value is not an unweighted representation of every pressure fluctuation in the air. It is a frequency-weighted sound level in which lower-frequency components contribute less to the final reported value.

That is extremely useful for many types of environmental noise assessment.

But it also creates an important distinction.

A Low dBA Value Does Not Necessarily Mean Low-Frequency Pressure Fluctuations Are *Absent.*

Rather, low-frequency components are given substantially less weight in the final A-weighted value.

<u>An easy way to think about it is this:</u>

Microphone measures sound pressure
A-weighting is applied to the measured frequencies
Lower-frequency components are reduced in the weighted result
A single overall dBA value may then be reported

For many environmental-noise questions, an overall dBA value can be useful. However, if the specific question is, “What is occurring at very low frequencies?” an overall dBA value alone may not fully characterize that frequency range.

Applicable Standards and Measurement Considerations

The Town of Fremont’s wind law contains separate provisions addressing A-weighted sound, low-frequency sound/infrasound, and tonal sound. The relevant provisions are reproduced below.

Fremont Town Law

S 8.13 Setbacks for Wind Energy Conversion Systems.

A. ***A Level Noise****-The sound pressure level generated by a WECS shall not exceed 50 dBA Leq(1hr) measured at all off-site property lines. The sound pressure shall not exceed 45 dBA Leq(1hr) the exterior walls of any off site residence. The annual nighttime average for non-participating residences will be 40 dBA leq (8Hr). The developer will install the lowest noise model available within the selected manufacture's options. The model selected will be type certified to an industry recognized standard. No aftermarket models / parts will be allowed, and no prototypes will be utilized without specific prior approval by the Town. The turbine will have serrated blades installed to reduce the overall noise impact. If an updated technology is available this will be brought to the Town for review. Independent certification shall be provided before and after construction*

B. Low Frequency noise*- The WECS shall not be operated so low frequency and infrasound sound adversely affects the habitability or use of any residence. In order to establish this, the applicant will follow the guide lines of the indoor standard of ANSI/ASA S2.71-1983 tor vibration.* ***The WECS shall not exceed 65 dB/ Leq(1hr) the exterior walls of an Off-Site Residence at 16 Hz, 31.5 Hz and 63 Hz.***

C. *In the event audible noise due to WECS operations contains a steady pure tone, such as a whine, screech, or hum, the standards for audible noise set forth in subparagraph l) of this subsection shall be reduced by five (5) dBA. A pure tone is defined to exist if the one-third (1/3) octave hand sound pressure level in the band, including the tone, exceeds the arithmetic average Of the sound pressure levels of the two (2) contiguous one third (1/3) octave bands by five (5) dBA for center frequencies of five hundred (500) Hz and above, by eight (8) dBA for center frequencies between one hundred and sixty (160) Hz and four hundred (400) Hz, or by fifteen (15) dBA for center frequencies less than Or equal to one hundred and twenty-five (125) Hz.*

The measurement questions raised in Fremont are addressed in established acoustic standards and published scientific research.

ANSI/ASA S12.9-2016/Part 7 — Low-Frequency Sound and Infrasound Measurements

ANSI/ASA S12.9-2016/Part 7, *Measurement of Low-frequency Noise and Infrasound Outdoors in the Presence of Wind and Indoors in Occupied Spaces*, addresses methods for measuring low-frequency noise and infrasound in outdoor and indoor environments.

The standard provides guidance for obtaining reliable, repeatable measurements, including methods for evaluating low-frequency sound in the presence of wind and documenting frequency-specific sound levels inside occupied buildings.

This standard is particularly relevant to Fremont because the conditions we reported occurred both inside and outside our residence. It provides an established technical framework for evaluating the types of environmental conditions described in this report.

ANSI/ASA S2.71-1983 — Mechanical Vibration in Buildings

The Town of Fremont's wind law references ANSI/ASA S2.71-1983, a standard addressing human exposure to mechanical vibration in buildings over approximately 1 to 80 Hz.

An important distinction exists between mechanical vibration of a building and airborne low-frequency sound or infrasound. Structural vibration involves physical movement of building components, while airborne sound involves pressure fluctuations traveling through air.

These are different physical measurements and may require separate instrumentation.

A comprehensive investigation should therefore consider whether airborne pressure fluctuations, structural vibration, or both need to be evaluated to adequately characterize the conditions reported at a residence.

Published Research Comparing Microphones and Microbarometers

A 2024 peer-reviewed study by Marvin Rust and Christian Koch of Germany's national metrology institute, the Physikalisch-Technische Bundesanstalt (PTB), compared measurement microphones and microbarometers during field investigations near wind-energy facilities.

The researchers discussed limitations in established sound-level-meter standards and measurement practices at frequencies below 10 Hz. Their research examined the performance of both instrument types under actual environmental conditions.

The study found that both measurement microphones and microbarometers can be used for environmental infrasound investigations, although each instrument type has limitations. The microphones examined were more susceptible to wind-induced measurement noise, while the microbarometers used in the study exhibited higher self-noise.

This research demonstrates the importance of selecting instrumentation appropriate to the frequencies and environmental conditions being investigated. It also provides a scientific basis for considering complementary measurement methods when evaluating very-low-frequency atmospheric-pressure fluctuations near wind-energy facilities.

Taken together, the ANSI/ASA guidance and the Rust and Koch study support a straightforward principle: the measurement method should match the frequency range and physical phenomenon being investigated. If a complaint involves conditions below the reliable lower range of the instrument being used, additional instrumentation or analysis may be necessary before that portion of the complaint can be meaningfully evaluated.

Why This Matters in Fremont

The distinction between conventional sound measurements and very-low-frequency pressure monitoring became particularly important during the investigation at my residence.

My concern was not simply whether the turbines were audible or whether an overall dBA limit was being exceeded. I was attempting to understand the pressure-related conditions we were experiencing and determine whether the monitoring equipment could adequately characterize them.

Three questions were central to my investigation:

> What atmospheric-pressure fluctuations were occurring at the residence?
>
> At what frequencies were these fluctuations occurring?
>
> Was the monitoring equipment capable of evaluating frequencies below 10 Hz?

During RSG's investigation, I was informed that the microphone being used had a lower frequency limit of approximately 10 Hz. This raised concerns about whether the investigation could adequately characterize pressure fluctuations occurring below that frequency.

A monitoring system cannot reliably evaluate frequencies outside its specified measurement range. Therefore, understanding the instrumentation, frequency response, filtering, and measurement procedures used during post-construction testing is essential to determining whether the reported conditions were adequately investigated.

This unresolved question was a primary reason I began researching microbarometers and other instruments capable of recording very-low-frequency atmospheric-pressure fluctuations.

The central question is straightforward:

If residents are reporting conditions that may involve very-low-frequency pressure fluctuations, are the measurements extending low enough in frequency to determine what is actually occurring?

An overall A-weighted sound level cannot fully answer this question. Evaluating the very-low-frequency environment requires appropriate frequency-specific measurements.

Independent Citizen-Science Monitoring

During January and February 2026, I conducted monitoring at my residence using a Scarlet Class 1 sound level meter and an INFRA20-19PA Infrasound Monitor borrowed from a colleague. RSG was also conducting sound testing at the property during this period.

My initial monitoring revealed a distinction between the information provided by the conventional sound level meter and the atmospheric-pressure variations recorded by the INFRA20. This led me to investigate additional instruments capable of measuring very-low-frequency pressure fluctuations.

I wanted an instrument that could provide continuous monitoring, record changes in atmospheric pressure over time, and allow me to examine the frequency characteristics of those fluctuations.

Through this research, I discovered the Raspberry Boom, a monitoring instrument manufactured by Raspberry Shake. The Raspberry Boom incorporates a microbarometer designed to detect very-low-frequency atmospheric-pressure fluctuations. The instrument records pressure variations in pascals (Pa), with data that can be examined through waveform displays and frequency analysis.

An important feature was the ability to monitor conditions continuously and review the recordings remotely. This offered a significant advantage over occasional spot measurements, particularly because we were no longer living at the residence.

Continuous monitoring would allow me to compare recorded pressure fluctuations with wind direction, wind speed, observed turbine activity, and the physical symptoms we experienced during return visits.

My objective was to establish a documented record of the conditions occurring at our home and provide information that could be independently examined as part of a more comprehensive investigation.

My first Raspberry Boom was installed at my residence near the end of March 2026.

In May 2026, I purchased and installed a second Raspberry Boom to determine whether two independent instruments, positioned in different areas of the residence, would record similar atmospheric-pressure fluctuations.

One instrument was located in a main-floor bedroom, while the second was installed in my upstairs loft office, where I had experienced some of my most severe symptoms during January.

I began comparing the recordings from both instruments and observed that they frequently displayed remarkably similar pressure waveforms during the same time periods, despite being located in different areas of the house.

The similarity between the two recordings became an important observation because it provided an opportunity to compare independently recorded pressure fluctuations and evaluate whether recurring patterns were present throughout the residence.

Both instruments continue to provide time-stamped recordings that can be examined alongside wind direction, wind speed, observed turbine activity, and our documented physical experiences.

These records provide a basis for further investigation, including comparisons with turbine operational data, meteorological conditions, and professional acoustic measurements.

Raspberry Boom Methodology and Instrument Limitations

The Raspberry Boom is manufactured by Raspberry Shake, a geophysical-instrument company based in Panama. The company began making personal seismographs available to the public in 2016, providing accessible monitoring technology for researchers, educational institutions, and citizen scientists.

Originally developed around earthquake-monitoring technology, Raspberry Shake subsequently expanded its instruments to include the Raspberry Boom, designed to measure very-low-frequency atmospheric-pressure fluctuations, including infrasound.

How the Raspberry Boom Works

Unlike a seismometer, which measures ground movement, the Raspberry Boom uses a microbarometer to measure small changes in atmospheric pressure.

The instrument continuously records these pressure fluctuations, allowing them to be displayed as waveforms and examined by frequency.

Pressure is expressed in pascals (Pa), a standard unit of pressure. According to the manufacturer's specifications, the Raspberry Boom uses a temperature-compensated differential-pressure sensor and records data at 100 samples per second.

This continuous recording capability allows pressure fluctuations to be examined over time rather than relying solely on individual spot measurements.

Applications of Infrasound Monitoring

Very-low-frequency pressure fluctuations can originate from a variety of natural and human-generated sources. Microbarometers are used to investigate atmospheric signals associated with volcanic eruptions, explosions, meteors, storms, aircraft, industrial activity, and other environmental events.

These applications demonstrate the usefulness of microbarometers for investigating pressure fluctuations that may occur below the conventional audible frequency range.

Instrument Capabilities and Limitations

The Raspberry Boom records changes in atmospheric pressure but does not independently identify the source of those changes.

Pressure fluctuations can result from wind, weather conditions, building pressure changes, doors opening or closing, ventilation equipment, aircraft, industrial activity, and other sources.

Identifying the origin of a recorded signal requires examining additional information, including its frequency characteristics, timing, meteorological conditions, and potential source activity.

The frequency range that can be reliably interpreted also depends on the instrument's response characteristics, configuration, mechanical filtering, and data processing. These factors must be considered when evaluating the recorded measurements.

Why the Instrument Can Be Useful in This Investigation

The Raspberry Boom provides a method of examining very-low-frequency atmospheric-pressure fluctuations that are not fully characterized by an overall A-weighted sound measurement.

According to Raspberry Shake's technical specifications, the instrument uses a temperature-compensated differential-pressure sensor and records data at 100 samples per second. The frequency range that can be reliably evaluated depends on the instrument's response characteristics, configuration, and filtering.

For my investigation, the ability to continuously record atmospheric-pressure fluctuations has been particularly valuable. The recordings allow me to examine changes in pressure amplitude, waveform patterns, and frequency characteristics over time.

With two Raspberry Boom instruments installed in different areas of my residence, I can also compare recordings from the same time periods and identify similarities or differences between the two locations.

These time-stamped measurements can be examined alongside wind direction, wind speed, observed turbine activity, reported symptoms, and available turbine operational records.

Together, this information provides a foundation for identifying recurring patterns and determining which conditions warrant further independent technical investigation.

Raspberry Boom Data Access and Station Setup

Raspberry Boom recordings can be accessed through Raspberry Shake's public web interfaces and mobile application. These tools allow users to examine recorded atmospheric-pressure fluctuations, waveform patterns, and frequency information over time.

The mobile application has been particularly useful when planning return visits to our residence. It allows me to review recent pressure conditions remotely before deciding whether to return to the property.

For this report, I will begin with the desktop interface because it allows recordings from both Raspberry Boom stations to be viewed and compared during the same time periods.

The two instruments frequently display similar waveform patterns despite being located in separate areas of the house. Comparing their recordings provides an opportunity to examine whether common pressure fluctuations are present at both locations.

Raspberry Shake Public Data Access

Station View — Live Monitoring Stations

https://stationview.raspberryshake.org/#/

Data View — Historical Recordings

https://dataview.raspberryshake.org/

These public interfaces allow readers to locate participating monitoring stations and review available recorded data.

Raspberry Boom Station Identification

Both instruments use the HDF channel for atmospheric-pressure measurements.

Station ID	Location
RA0ED	Main-floor bedroom, western-facing side of residence
RF0E0	Upstairs loft office, eastern wall

The two instruments operate continuously, providing time-stamped recordings that can be compared across different periods and environmental conditions.

Time Conversion — UTC to Fremont, New York

Raspberry Boom recordings are displayed using Coordinated Universal Time (UTC).

To convert UTC to local time in Fremont, New York:

Eastern Daylight Time (EDT): Subtract 4 hours from UTC.

Eastern Standard Time (EST): Subtract 5 hours from UTC.

The applicable time difference depends on the date of the recording. When the subtraction crosses midnight, the local calendar date must also be adjusted.

All dates and times discussed in this report should be interpreted using the time zone identified with each observation or figure.

How the Raspberry Boom Data Are Viewed and Interpreted

The following screenshots demonstrate how Raspberry Boom recordings are displayed and how the information is used throughout this report.

Each recording provides information about atmospheric-pressure fluctuations over time. The waveform displays changes in pressure amplitude, while the frequency display illustrates the frequency content of the recorded signal.

The primary information examined includes:

- **Station ID:** Identifies which Raspberry Boom recorded the data.
- **HDF Channel:** Identifies the instrument's atmospheric-pressure recording channel.
- **Pressure Amplitude (Pa):** Shows the magnitude of pressure fluctuations displayed in the waveform.
- **Waveform:** Illustrates how pressure changes over time.
- **Frequency Display (Spectrogram):** Shows how the recorded signal's frequency content changes over time.
- **Time:** Identifies when the measurements were recorded, displayed in Coordinated Universal Time (UTC).

Both Raspberry Boom stations can be displayed simultaneously, allowing recordings from different areas of the house to be compared during the same time period.

Figure 1 — Raspberry Boom Desktop Data View

Date: September 23, 2026
Local Time: Approximately 9:11 a.m. EDT
Station IDs: RA0ED and RF0E0
Channel: HDF
Turbine Status: Reported or observed operating

Figure 1 demonstrates the desktop interface used to compare the two Raspberry Boom stations. The upper and lower displays show pressure waveforms and corresponding frequency information for the same period.

The annotated screenshot identifies the station names, pressure measurements, frequency displays, and recording times used throughout the remainder of this report.

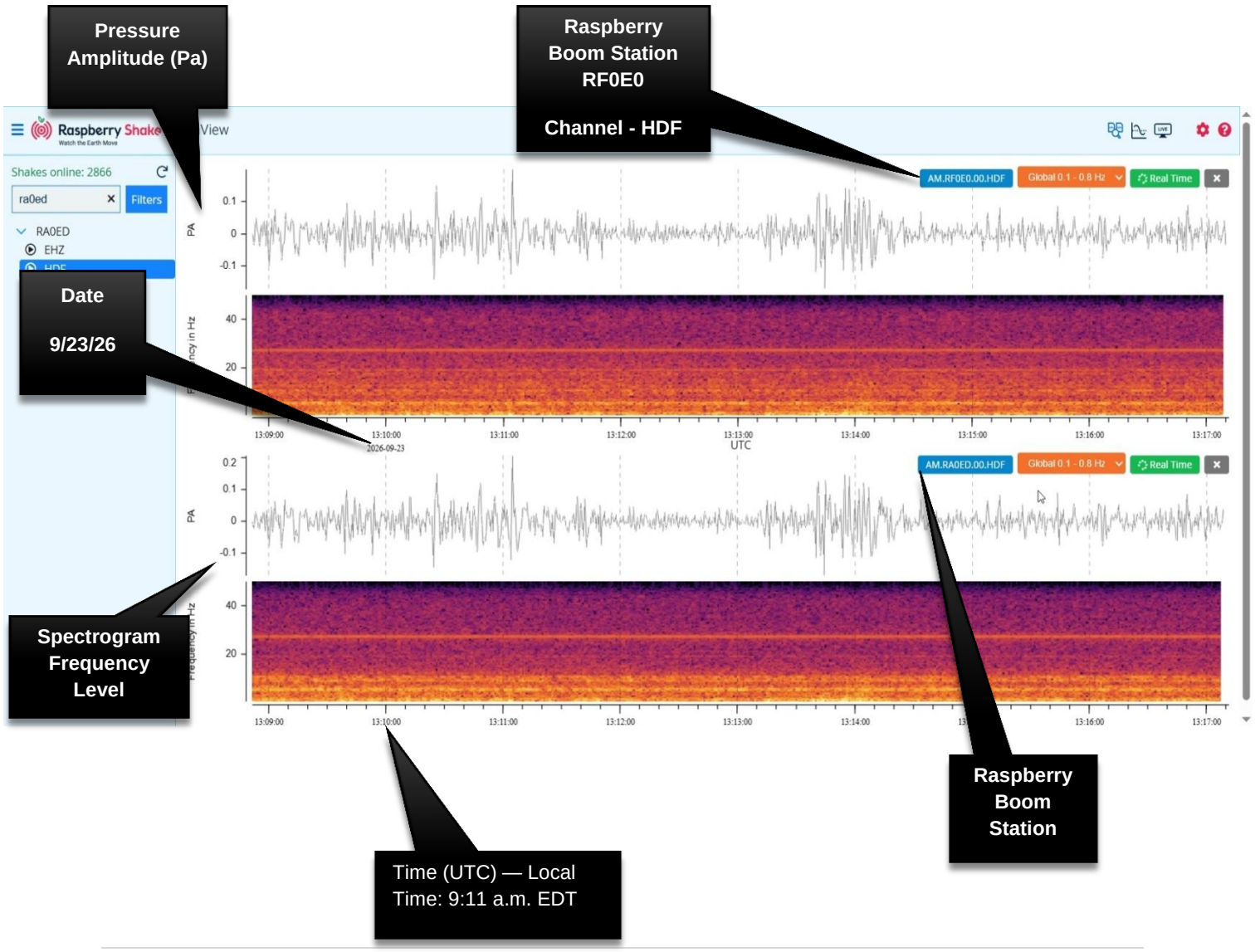


Figure 2 Example of an Identifiable Household Source

September 28, 2026 — 9:39 a.m. EDT
Approximate waveform amplitude: 0.03 Pa

This example shows a recorded event associated with refrigerator operation. A distinct narrowband feature appears in the frequency display during the event. Because the refrigerator represents a known household source, this example is useful for demonstrating how a recognizable source can appear in both the waveform and frequency display.

Left column — Station RF0E0
Global filter: 0.1–0.8 Hz
Regional filter: 0.7–2 Hz

Right column — Station RA0ED
Global filter: 0.1–0.8 Hz
Regional filter: 0.7–2 Hz

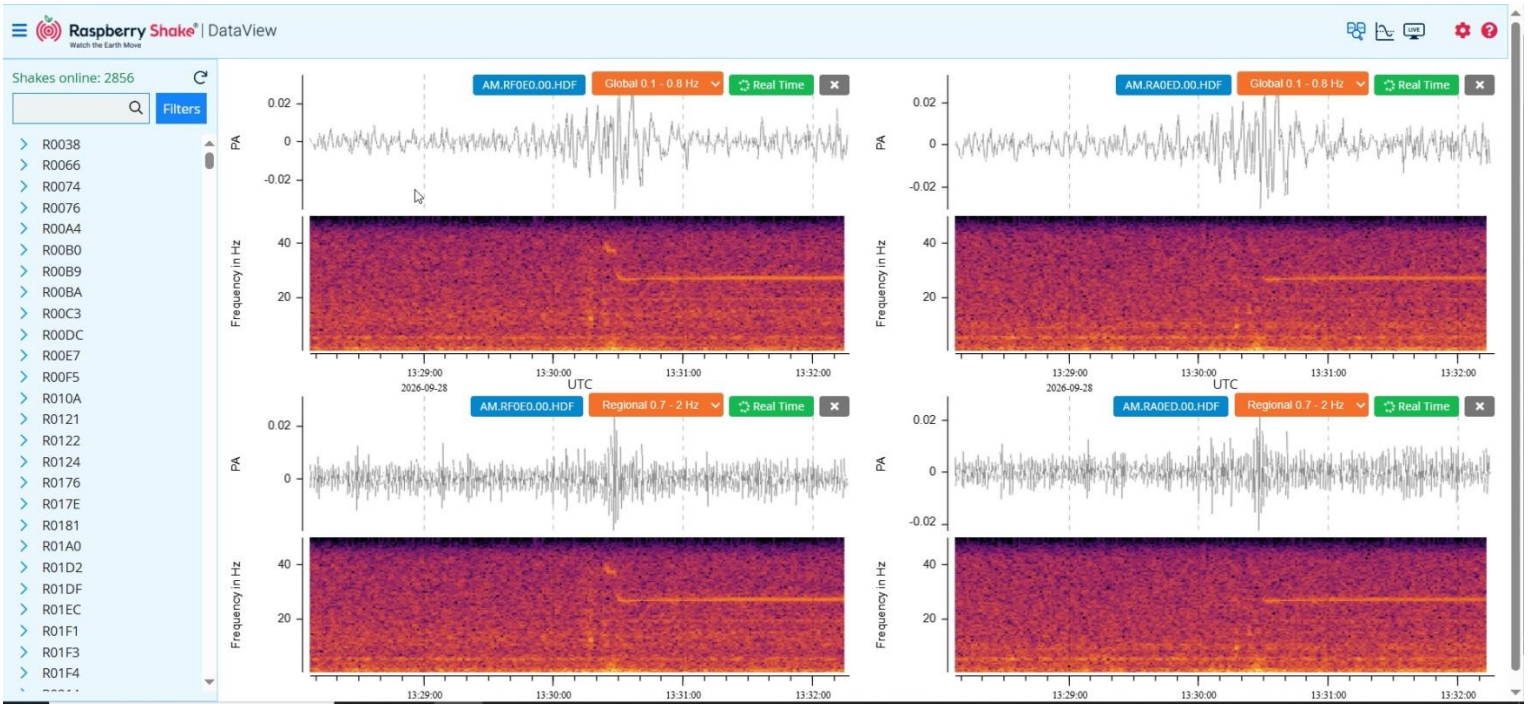


Figure 3

Raspberry Boom- App View Training

Turbines appear to be OFF

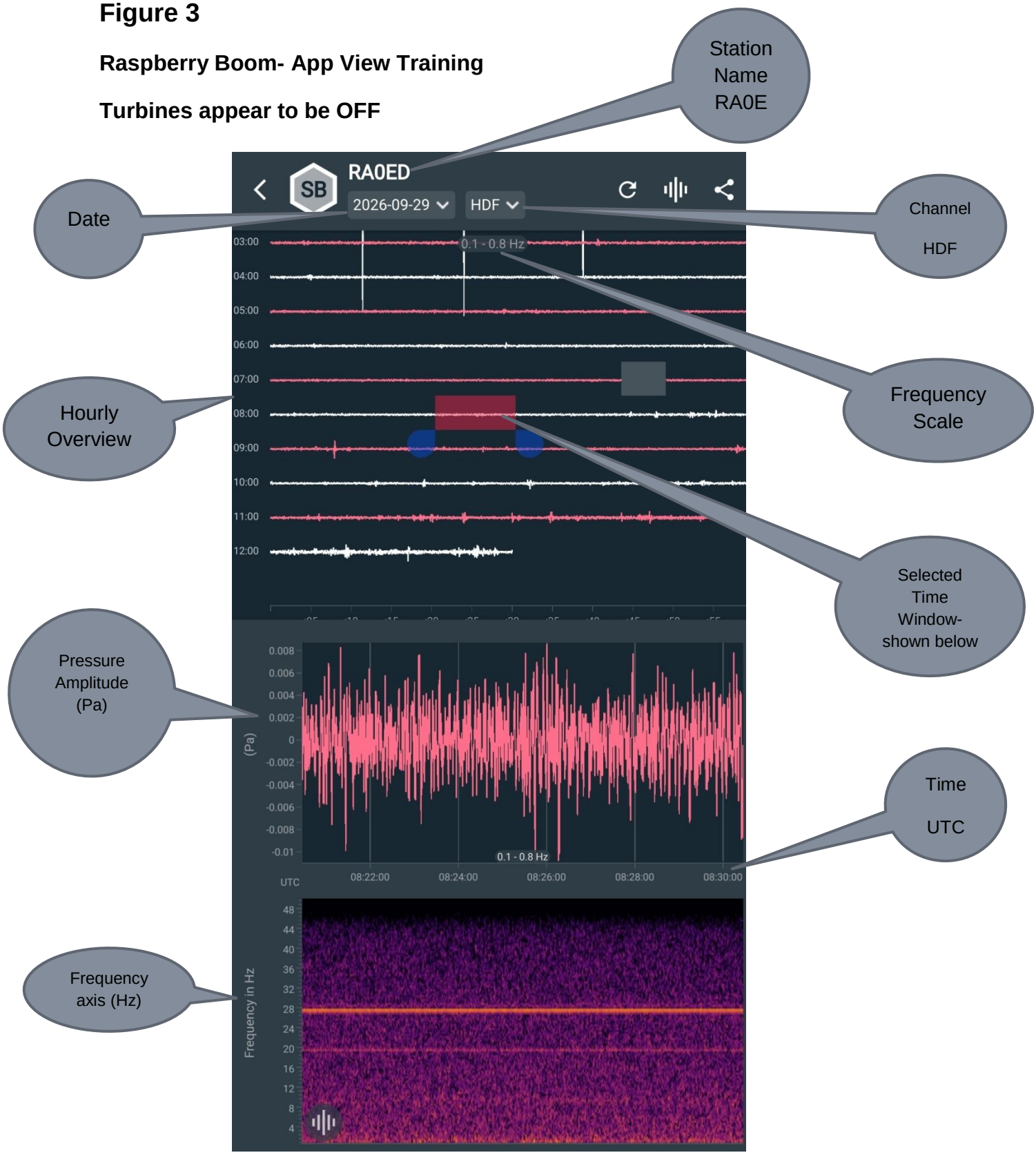


Figure 4

9/30/26 5:30PM (Turbines appear off) (0.1-0.8 Hz Filter Range)

We are at the house. Large Spike= front door- pressure change. The spectrogram shows broadband energy extending above 20 Hz during the door-pressure transient.

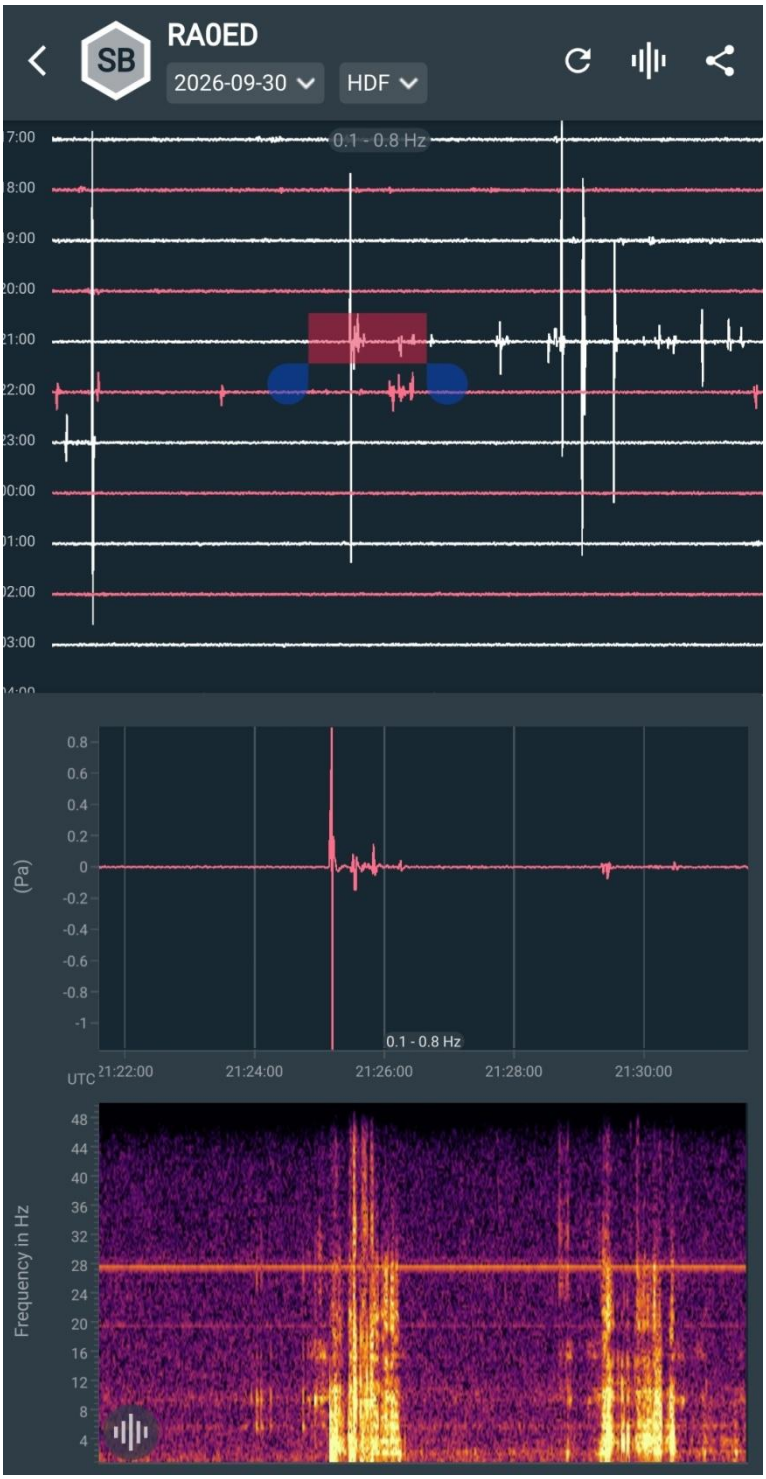


Figure 5

10/02/2026 9:48 AM (Turbines reported/observed off)

(0.1-0.8 Hz Filter Range)

Refrigerator example constant 28 Hz

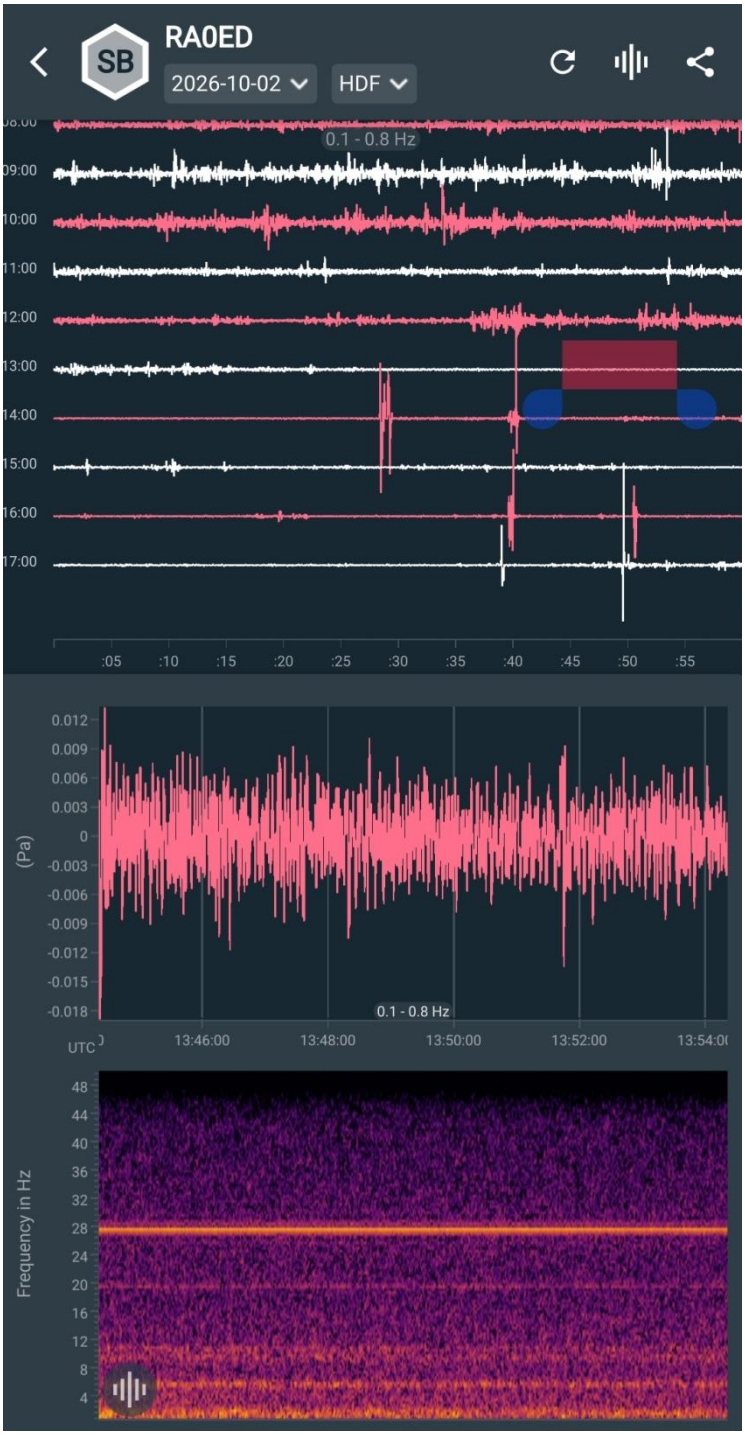
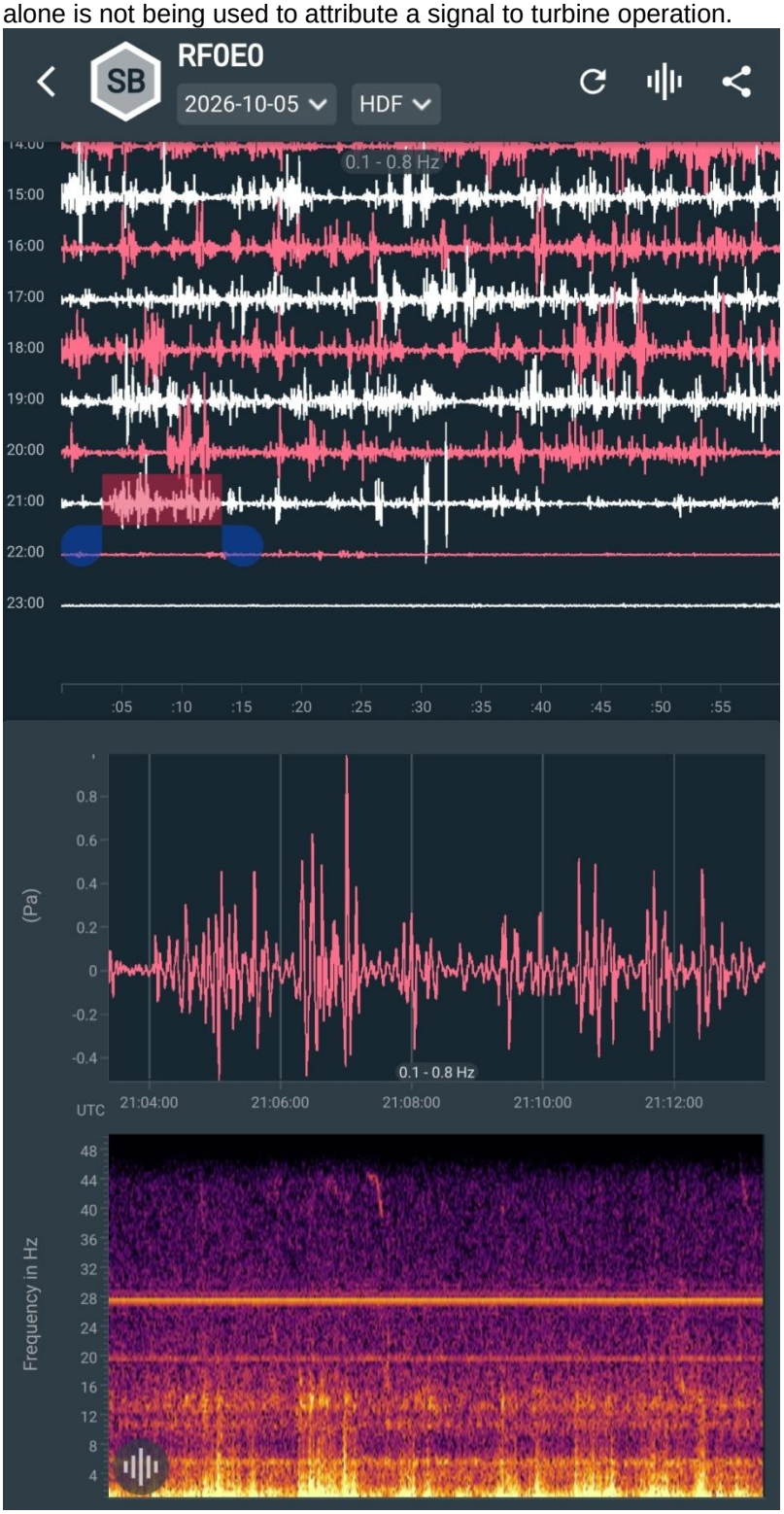


Figure 6

10/05/26 5:04pm- (Turbines observed off) Heavy wind. Despite substantial pressure variation recorded by the Raspberry Boom during heavy wind, the turbines were observed off and no comparable symptoms were experienced. This example is included to demonstrate that elevated pressure amplitude alone is not being used to attribute a signal to turbine operation.



Documented Observations and Case Data

Since relocating from our Fremont residence on January 21, 2026, Nick and I have generally experienced improved sleep and fewer symptoms while living away from the property. This has provided opportunities to return to our home feeling comparatively well and observe changes in our physical condition under different environmental circumstances.

Between April 1 and October 10, 2026, we documented our experiences during return visits alongside Raspberry Boom pressure recordings, wind direction, wind speed, and observed turbine activity.

During these visits, I identified recurring patterns between our reported symptoms and certain displayed pressure conditions. At times, symptoms developed or intensified while we were at the residence. During other visits, we were able to remain at the property with little or no discomfort.

The Raspberry Boom instruments continued recording while we were away, providing time-stamped data that could be reviewed before, during, and after our visits.

The following table summarizes the symptoms and physical sensations we documented during periods associated with different displayed Raspberry Boom pressure amplitudes. These values describe our observations and are not intended to represent established medical exposure limits.

Reported Physical Observations and Raspberry Boom Readings

Approximate displayed pressure amplitude	Documented observations
0.008 Pa or lower	Conditions generally felt normal or comparatively comfortable. We could typically remain at the residence without significant symptoms.
0.03 Pa	I sometimes experienced a prickling or spider-web-like sensation on my skin and mild ear ringing. Some visits remained tolerable enough for us to stay overnight.
0.05 Pa	Increasing ear discomfort, difficulty concentrating, confusion, and anxiety-like sensations. Nick also reported concentration difficulties and anxiety-like sensations during some visits.
0.10 Pa and above	More severe symptoms, including stabbing ear pain, pronounced pressure in my ears, and a strong fight-or-flight sensation. Nick reported chest sensations and other discomfort during some visits. I also experienced significant calf-muscle tightening that sometimes persisted for several days after leaving the property. These symptoms frequently prompted me to leave the residence.

Measurement Notes and Data Sources

The pressure values presented in this table and the following figures represent approximate amplitudes displayed by the Raspberry Boom instruments. Measurements were reviewed using selected waveform filters of 0.1–0.8 Hz and 0.7–2.0 Hz, as identified in the individual figures.

The wind direction and wind speed data (Mph) presented in the figures were obtained from weather observations recorded at Dansville Municipal Airport, Dansville, New York. These measurements provide regional meteorological information for comparison with the Raspberry Boom recordings and documented observations at the residence.

The observations reflect physical symptoms experienced during visits to the residence under different recorded pressure conditions. Because selected frequency filters affect displayed amplitudes, measurements from different filter ranges should be interpreted within their respective frequency bands rather than treated as directly equivalent.

These records provide a basis for comparing atmospheric-pressure fluctuations, wind conditions, observed turbine activity, and reported symptoms, and for further independent technical investigation.

Figure 7

Raspberry Boom Pressure Waveform and Frequency Analysis

Date	Time	Wind Direction	Wind Speed	Maximum Displayed Pressure Amplitude (Pa)	Raspberry Boom Location	Selected Frequency Filter
4/17/26	3:00 PM	NNW	6	0.24	Bedroom	0.7–2.0 Hz

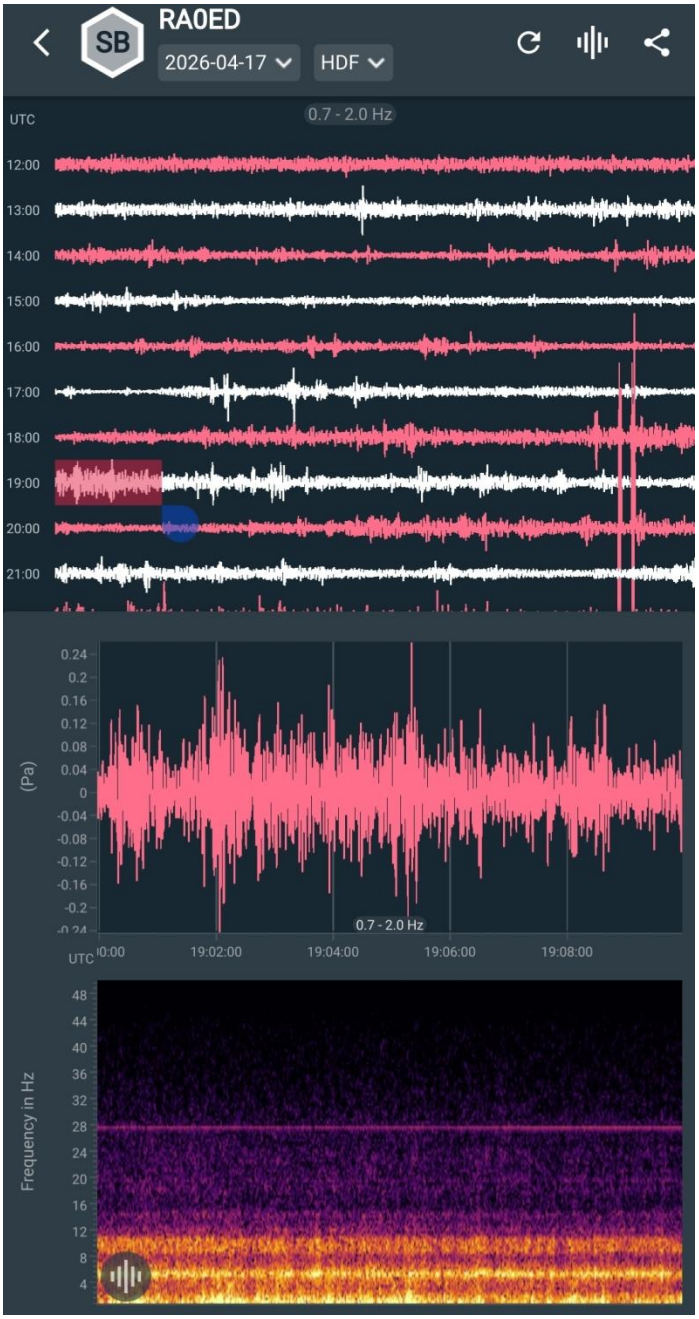


Figure 8

Raspberry Boom Pressure Waveform and Frequency Analysis

Date	Time	Wind Direction	Wind Speed	Maximum Displayed Pressure Amplitude (Pa)	Raspberry Boom Location	Selected Frequency Filter
5/6/26	9:25 AM	S	6	0.35	Bedroom	0.7- 2.0 Hz

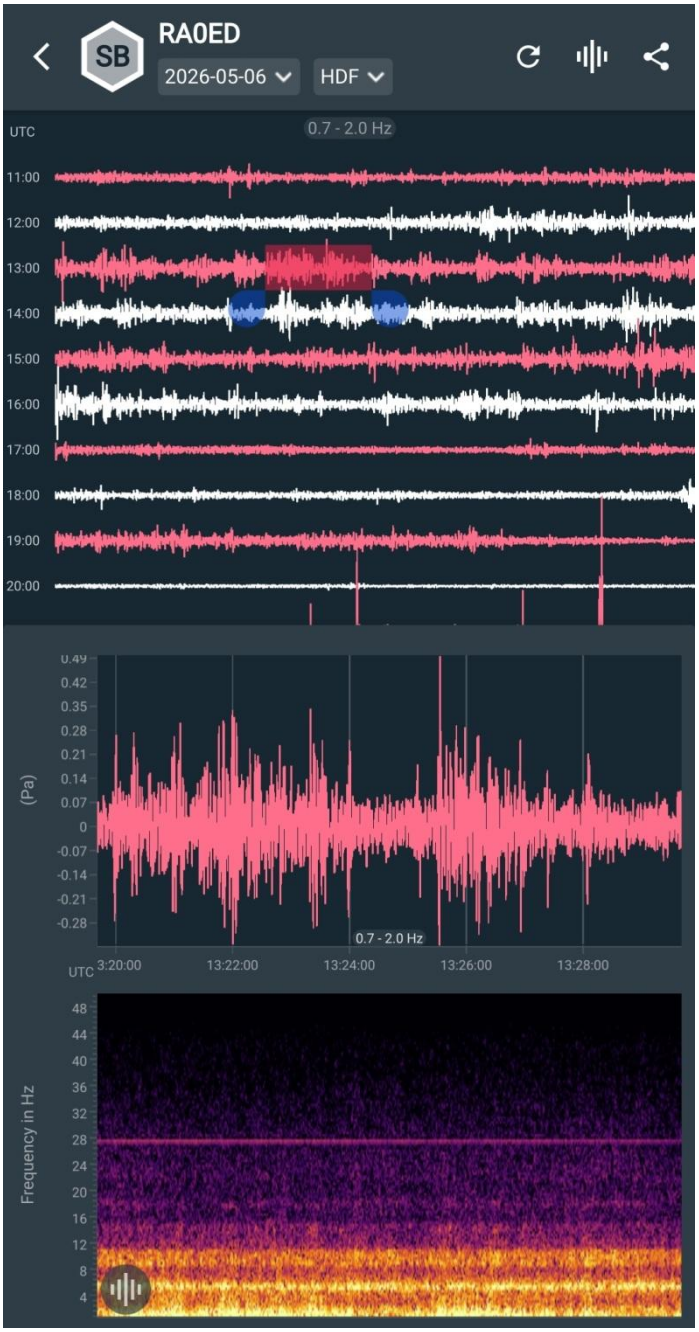


Figure 9

Raspberry Boom Pressure Waveform and Frequency Analysis

Date	Time	Wind Direction	Wind Speed	Maximum Displayed Pressure Amplitude (Pa)	Raspberry Boom Location	Selected Frequency Filter
5/11/26	**8:30 PM**	**SSE**	**5**	**0.012**	**Bedroom**	0.7–2.0 Hz

..

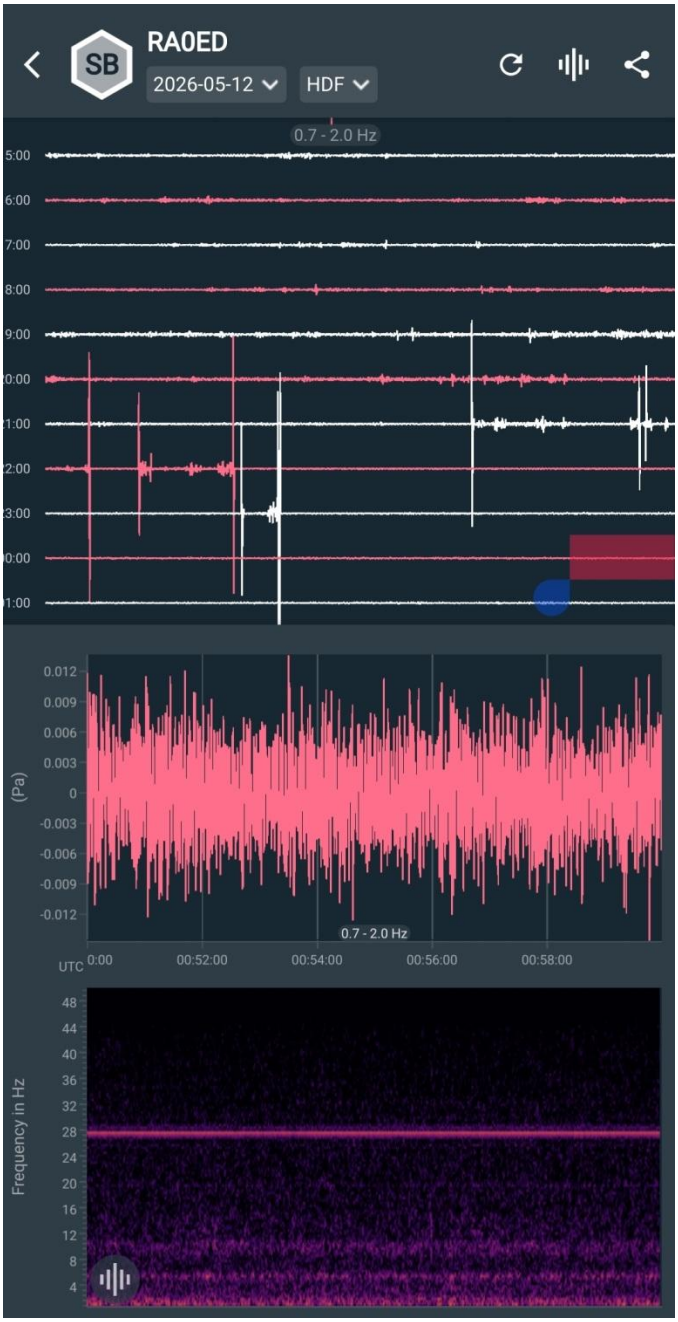


Figure 10

Raspberry Boom Pressure Waveform and Frequency Analysis

Date	Time	Wind Direction	Wind Speed	Maximum Displayed Pressure Amplitude (Pa)	Raspberry Boom Location	Selected Frequency Filter
6/6/26	**11:15 AM**	**SW**	**10**	**0.27**	**Bedroom**	0.1–0.8 Hz

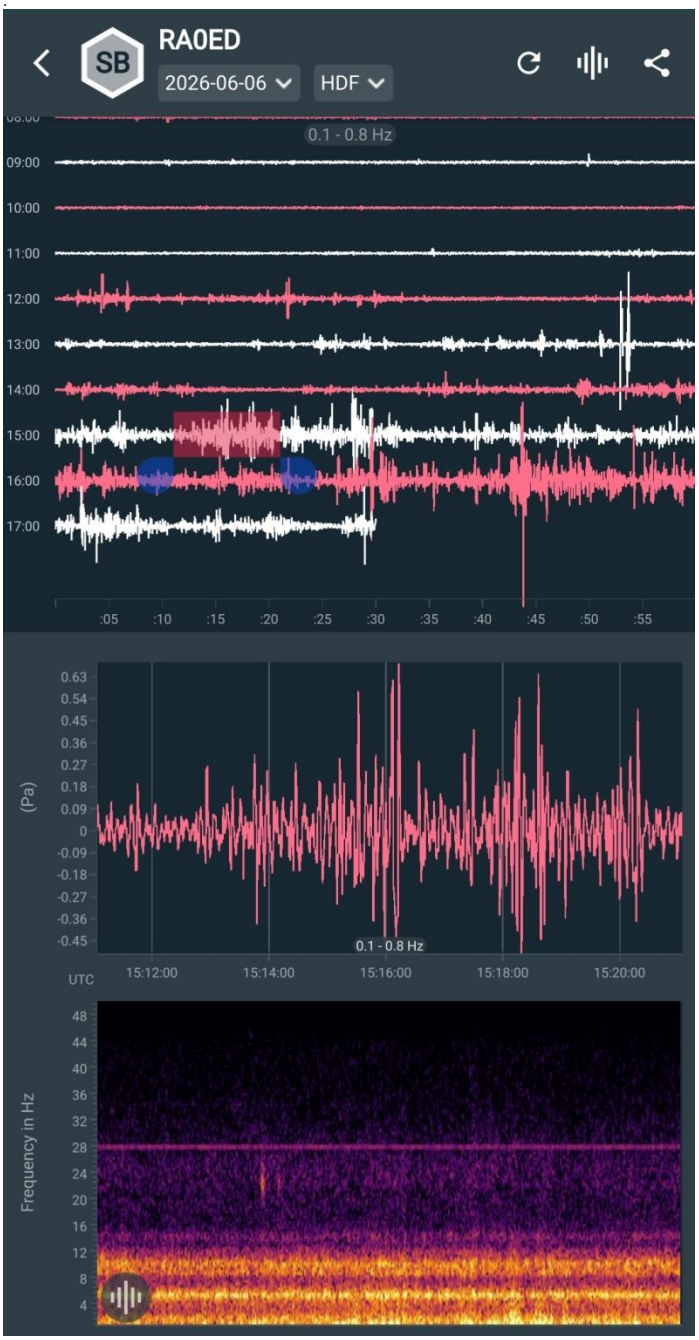


Figure 11

Raspberry Boom Pressure Waveform and Frequency Analysis

Date	Time	Wind Direction	Wind Speed	Maximum Displayed Pressure Amplitude (Pa)	Raspberry Boom Location	Selected Frequency Filter
7/7/26	**8:30 PM**	**ESE**	**5**	**0.008**	**Bedroom**	0.1–0.8 Hz

.

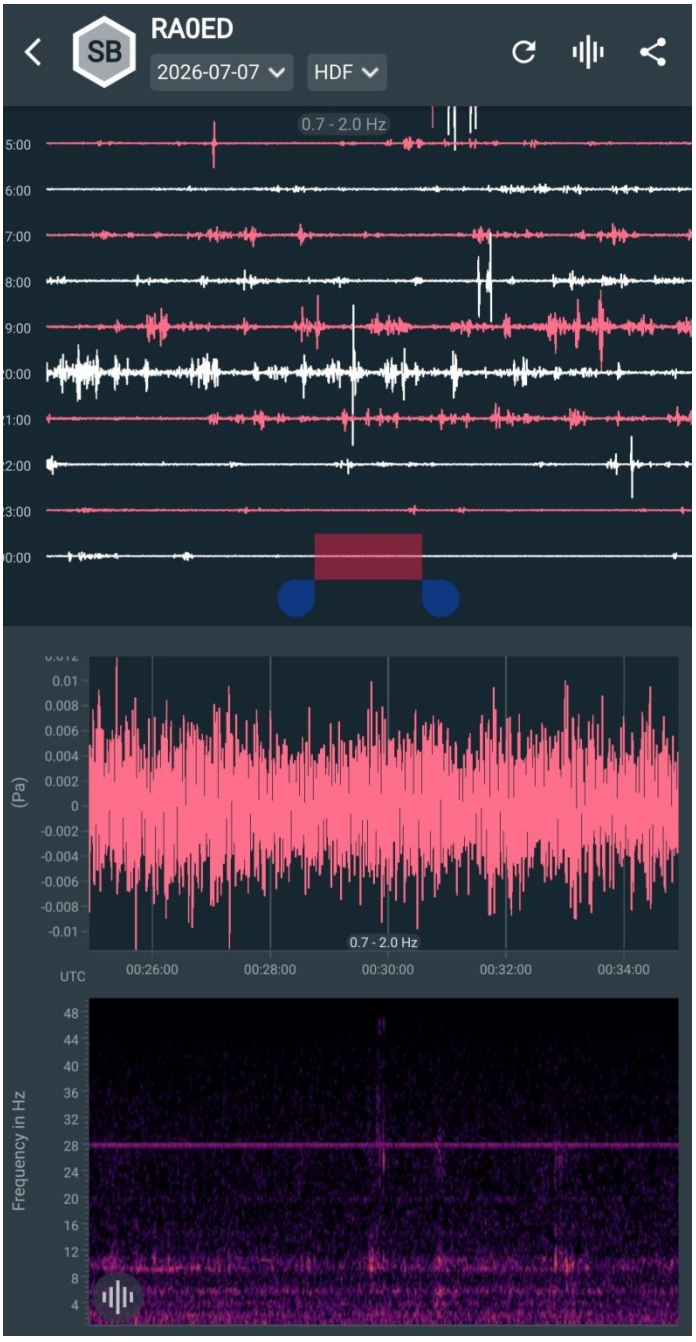


Figure 12

Raspberry Boom Pressure Waveform and Frequency Analysis

Date	Time	Wind Direction	Wind Speed	Maximum Displayed Pressure Amplitude (Pa)	Raspberry Boom Location	Selected Frequency Filter
7/13/26	**4:40 AM**	**SE**	**7**	**0.08**	**Bedroom**	0.7–2.0 Hz

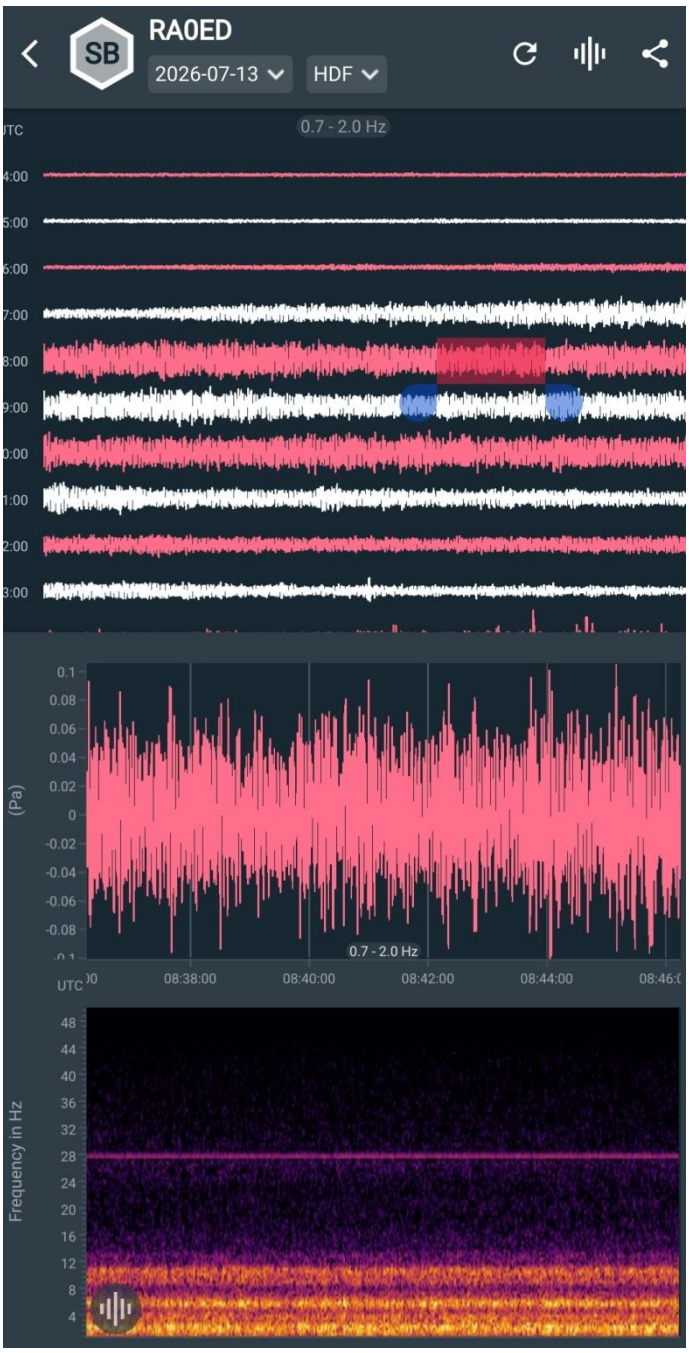


Figure 13

Raspberry Boom Pressure Waveform and Frequency Analysis

Date	Time	Wind Direction	Wind Speed	Maximum Displayed Pressure Amplitude (Pa)	Raspberry Boom Location	Selected Frequency Filter
8/4/26	**11:20 AM**	**S**	**5**	**0.09**	**Bedroom**	0.1–0.8 Hz

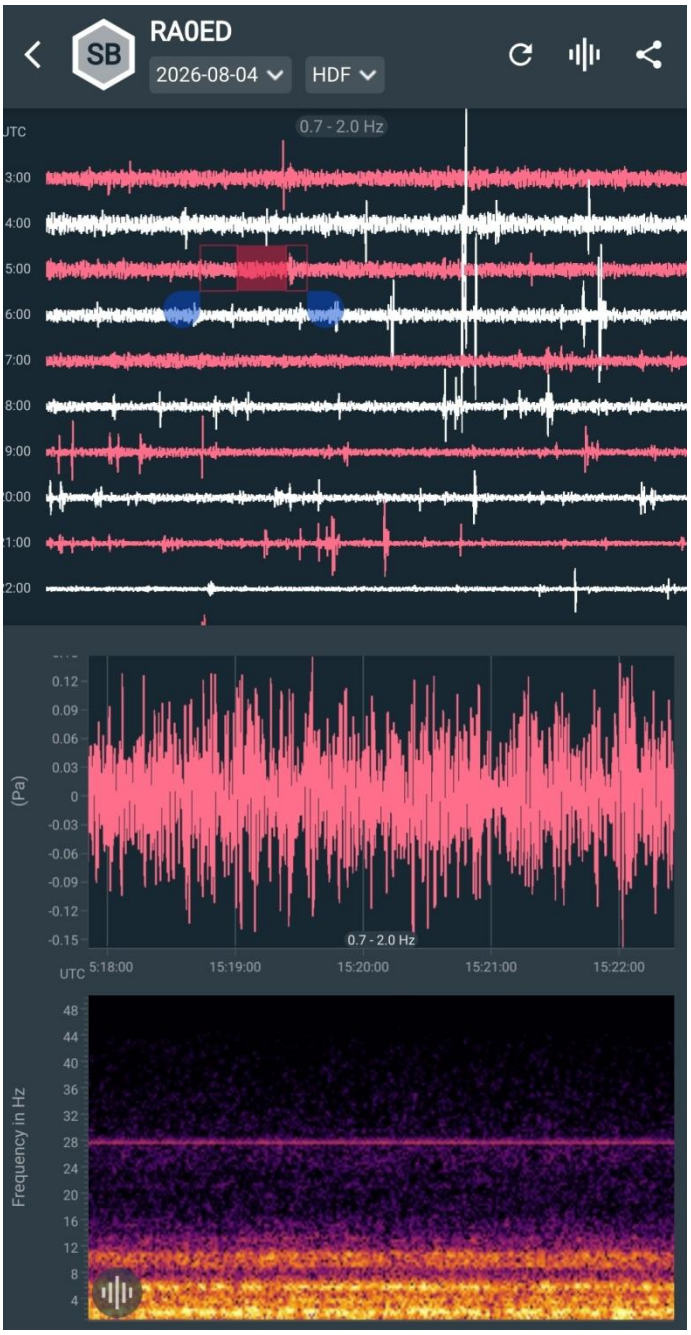


Figure 14

Raspberry Boom Pressure Waveform and Frequency Analysis

Date	Time	Wind Direction	Wind Speed	Maximum Displayed Pressure Amplitude (Pa)	Raspberry Boom Location	Selected Frequency Filter
9/11/26	**5:04 PM**	**NNW**	**7**	**0.08**	**Bedroom**	0.7–2 Hz

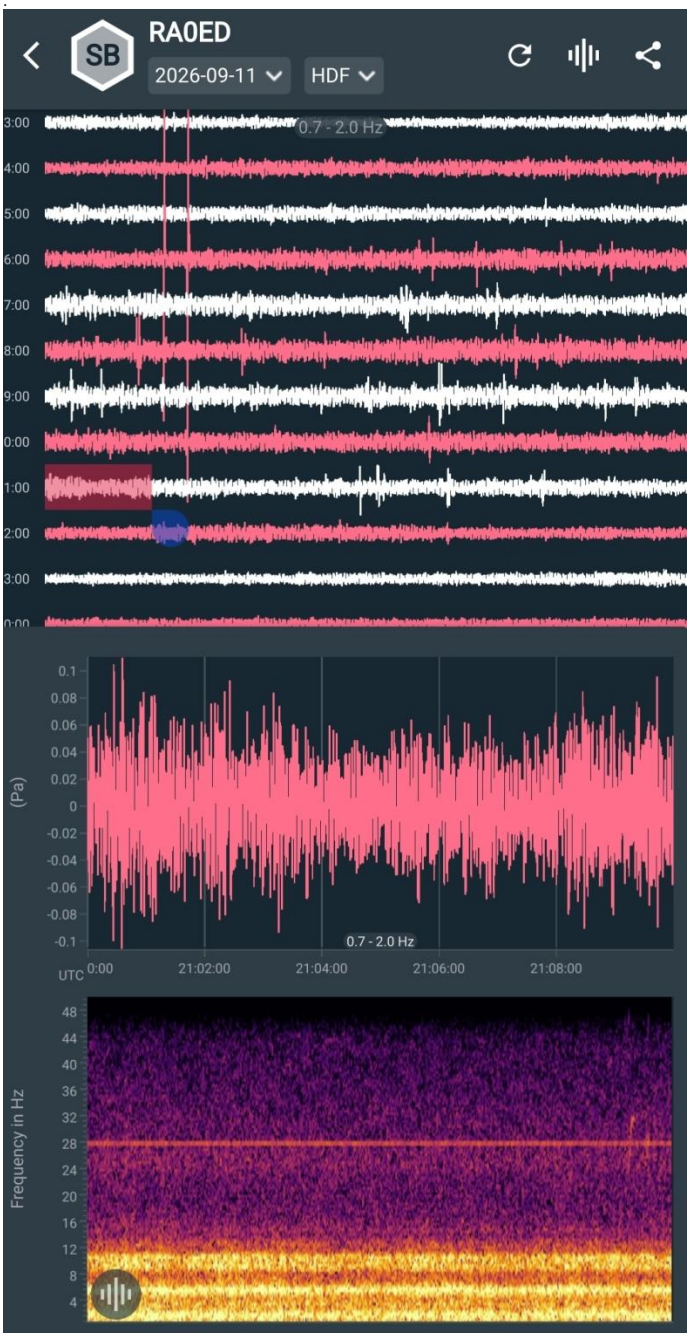


Figure 15

Raspberry Boom Pressure Waveform and Frequency Analysis

Date	Time	Wind Direction	Wind Speed	Maximum Displayed Pressure Amplitude (Pa)	Raspberry Boom Location	Selected Frequency Filter
9/28/26	**11:00 AM**	**NW**	**6**	**0.05**	**Loft**	0.1–0.8 Hz

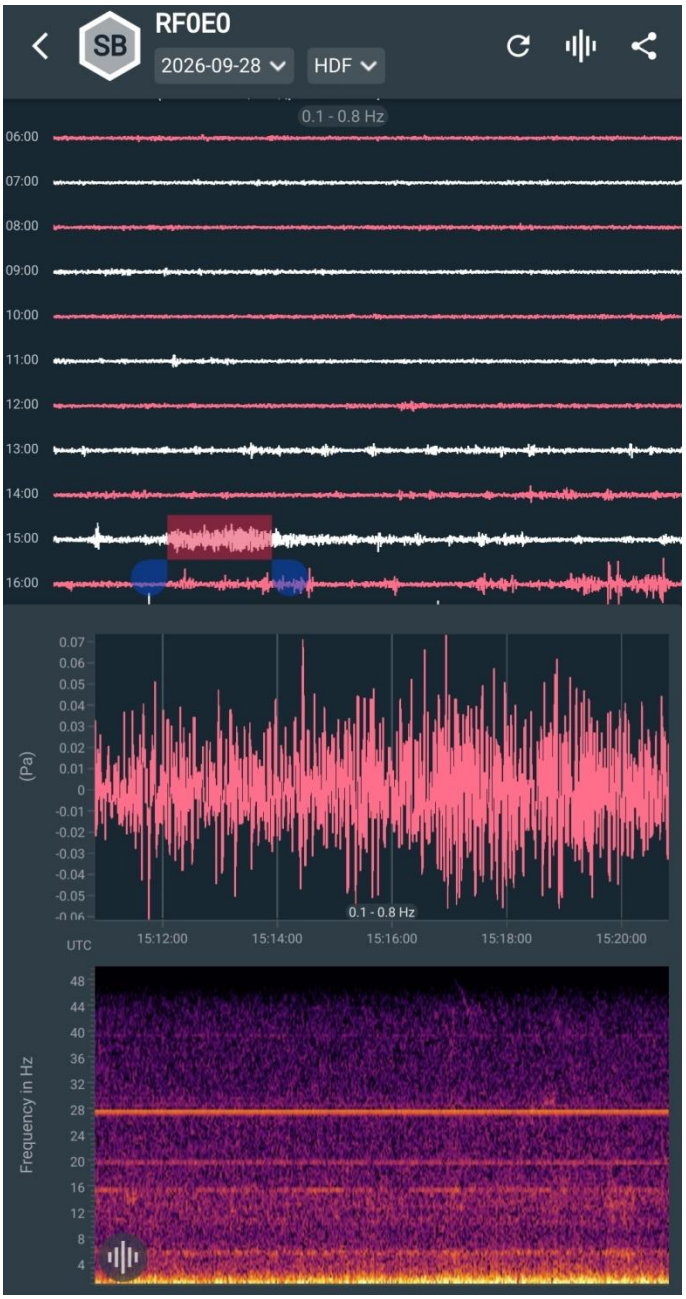


Figure 16

Raspberry Boom Pressure Waveform and Frequency Analysis

Date	Time	Wind Direction	Wind Speed	Maximum Displayed Pressure Amplitude (Pa)	Raspberry Boom Location	Selected Frequency Filter
9/30/26	**3:12 AM**	**E**	**9**	**0.004**	**Bedroom**	0.1–0.8 Hz

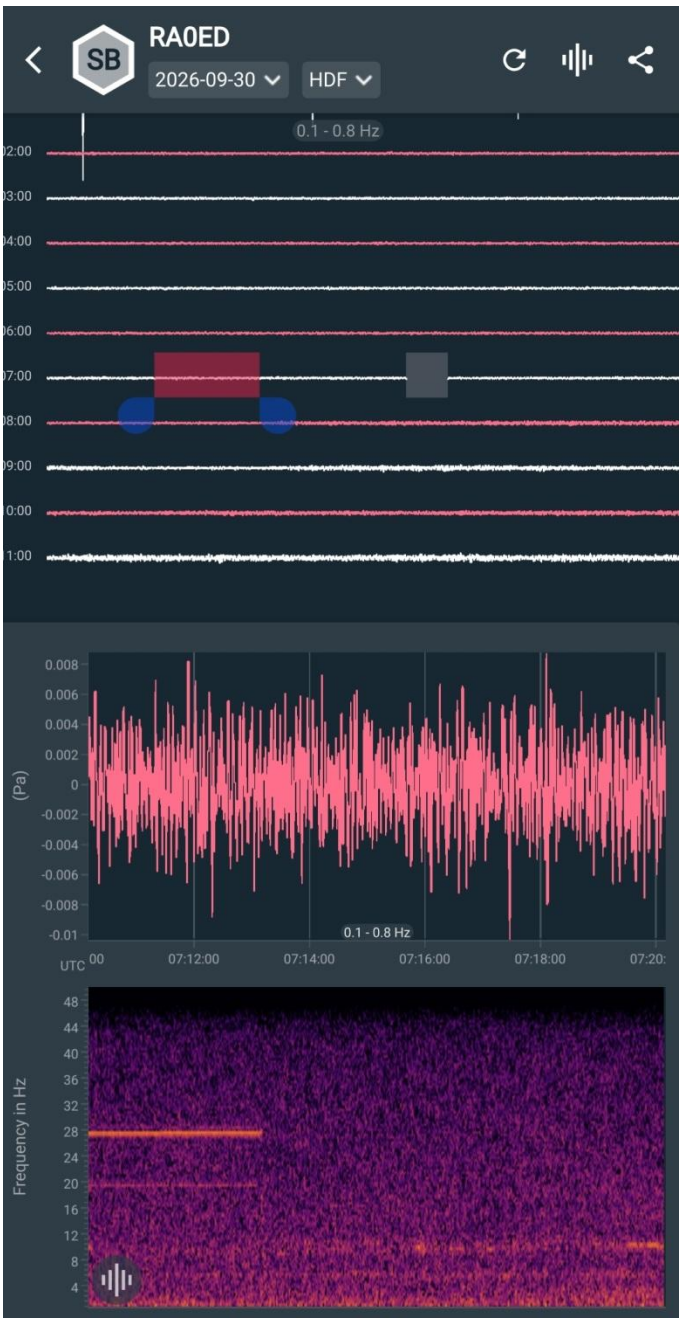


Figure 17

Raspberry Boom Pressure Waveform and Frequency Analysis

Date	Time	Wind Direction	Wind Speed	Maximum Displayed Pressure Amplitude (Pa)	Raspberry Boom Location	Selected Frequency Filter
10/1/26	**9:20 AM**	**ESE**	**8**	**0.09**	**Bedroom**	0.1–0.8 Hz

..

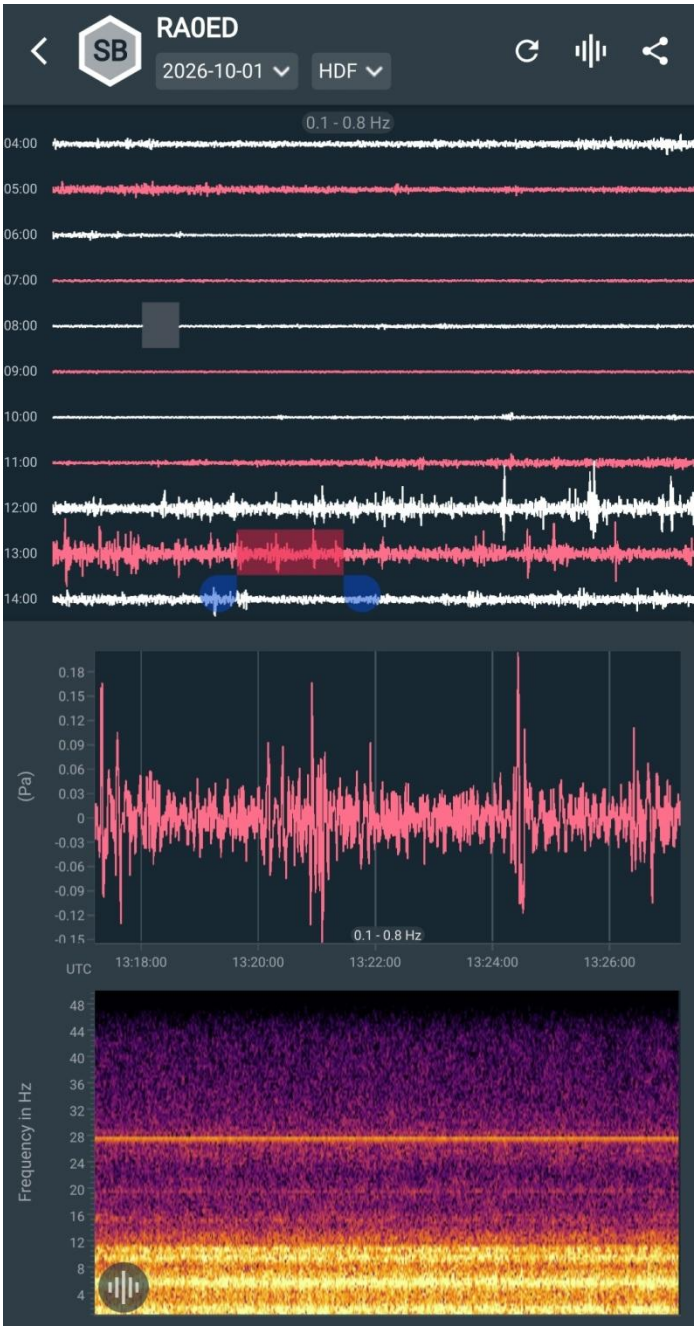


Figure 18

Raspberry Boom Pressure Waveform and Frequency Analysis

Date	Time	Wind Direction	Wind Speed	Maximum Displayed Pressure Amplitude (Pa)	Raspberry Boom Location	Selected Frequency Filter
10/2/26	**6:30 AM**	**S**	**3**	**0.14**	**Bedroom**	0.1–0.8 Hz

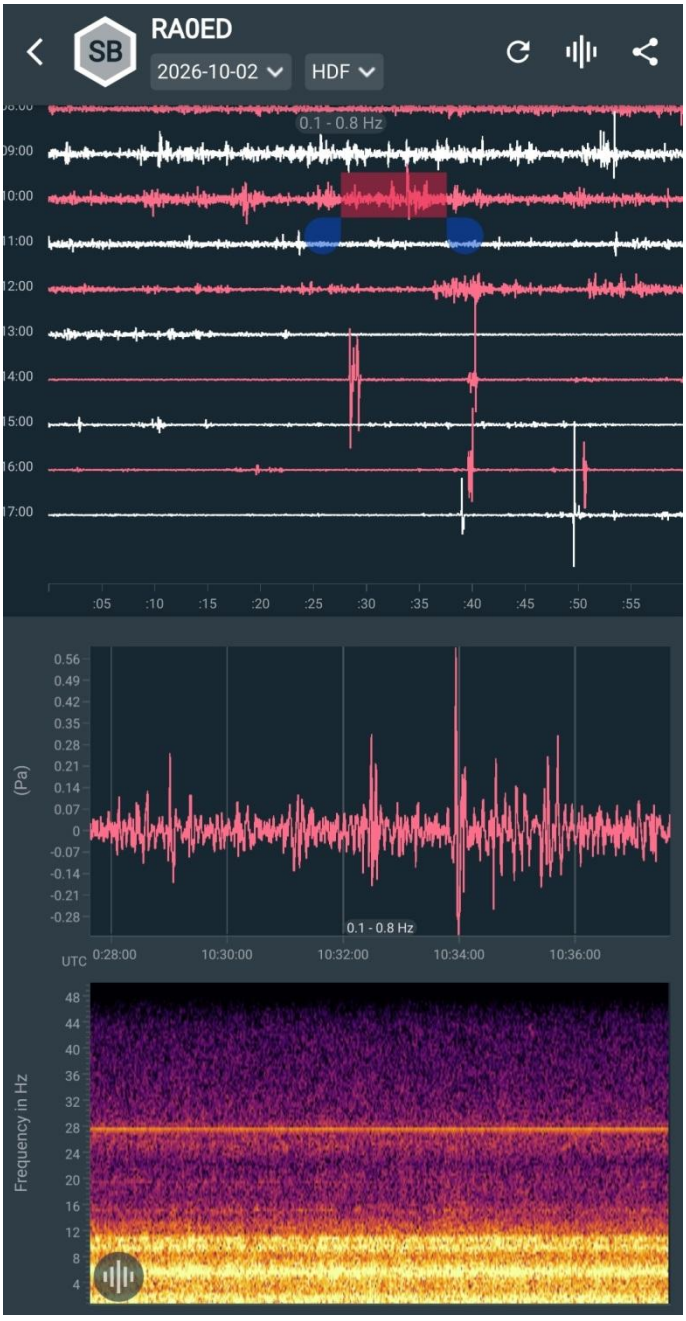
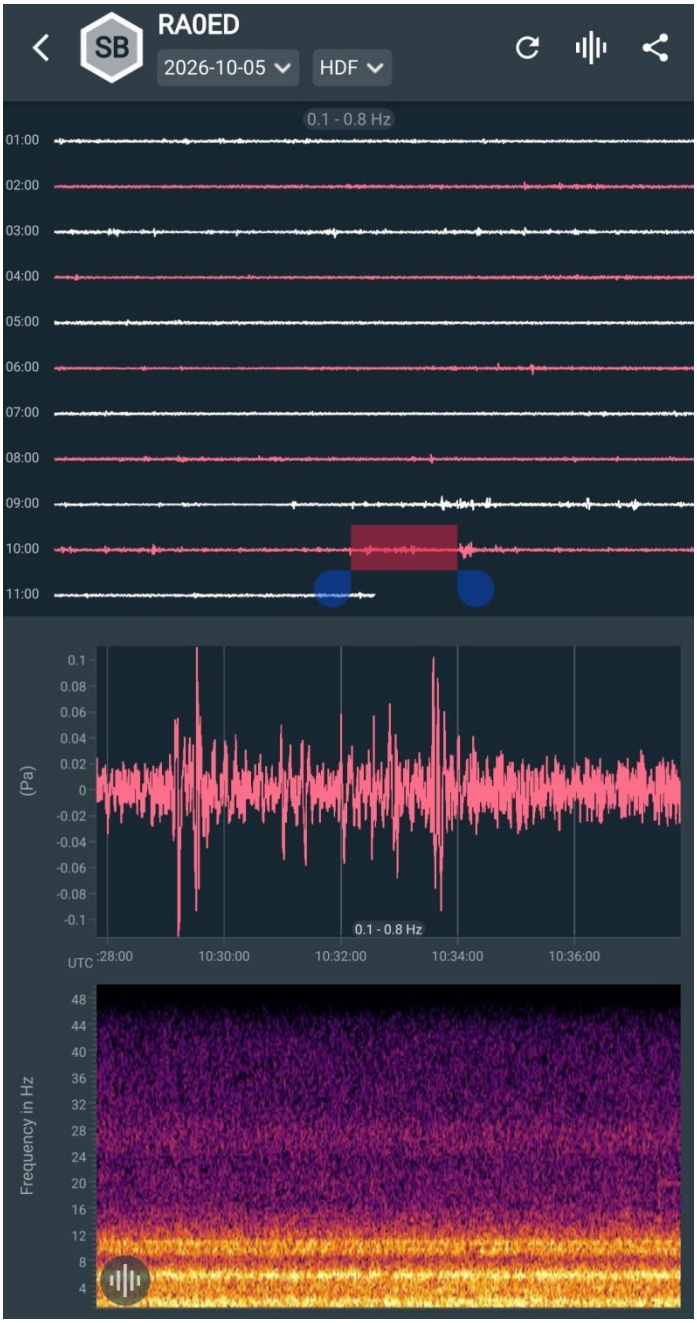


Figure 19

Raspberry Boom Pressure Waveform and Frequency Analysis

Date	Time	Wind Direction	Wind Speed	Maximum Displayed Pressure Amplitude (Pa)	Raspberry Boom Location	Selected Frequency Filter
10/5/26	**6:30 AM**	**S**	**3**	**0.04**	**Bedroom**	0.1–0.8 Hz



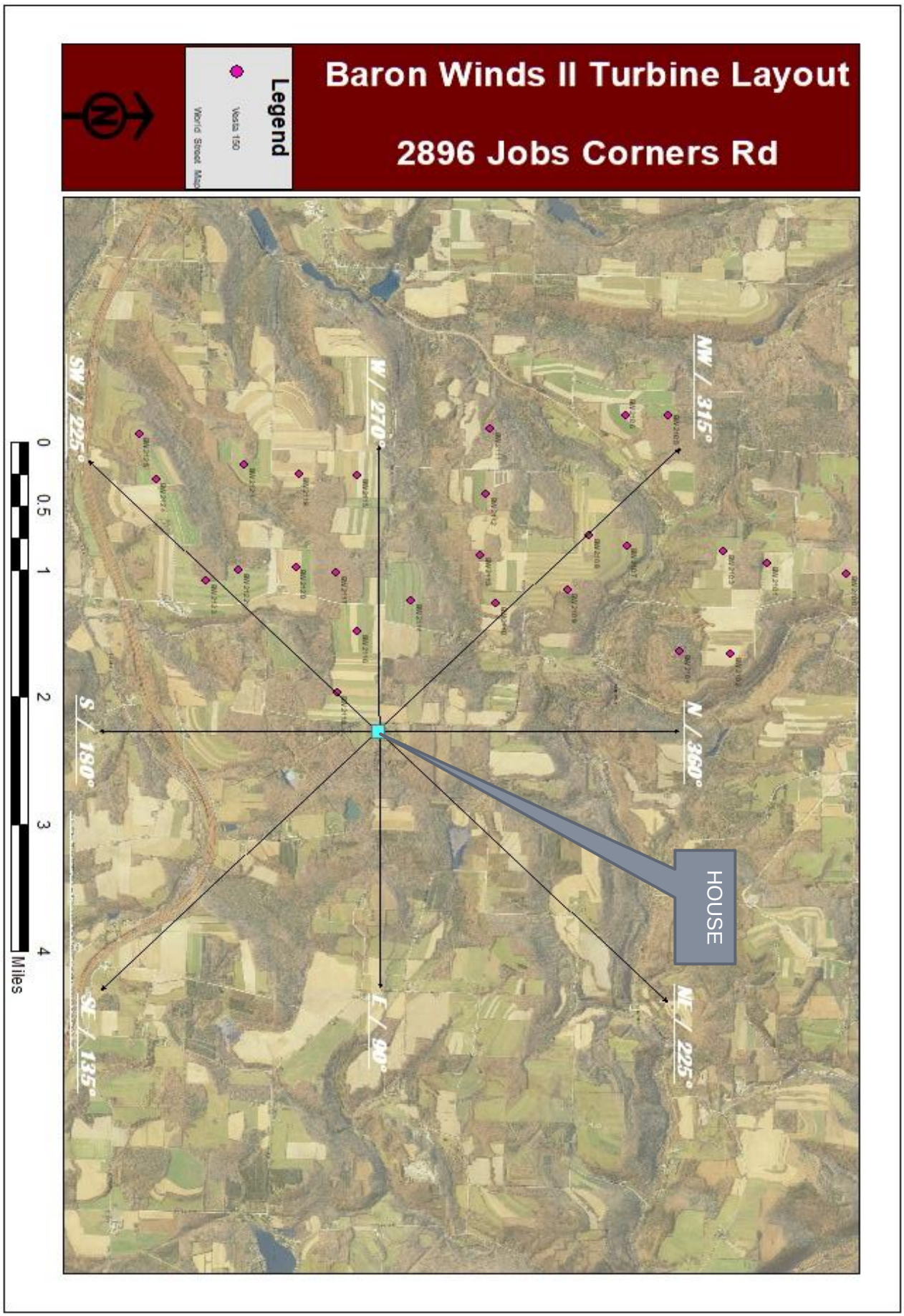
Observed Patterns Across Raspberry Boom Examples

Across multiple monitoring periods, the Raspberry Boom recordings show recurring atmospheric-pressure fluctuations concentrated in the very-low-frequency portion of the displayed spectrum. Several recordings also exhibit persistent horizontal bands, indicating relatively stable frequency components over the periods examined.

The displayed waveform amplitudes and spectral patterns vary considerably between observation periods. Some recordings show pronounced pressure fluctuations and sustained low-frequency features, while others exhibit smaller amplitudes and less prominent spectral activity.

These differences provide opportunities to compare recorded pressure conditions with wind direction, wind speed, observed turbine activity, and documented physical symptoms.

A systematic comparison with individual turbine operational records and meteorological data would help determine whether the recurring patterns are associated with particular operating or environmental conditions.


Baron Winds II Turbine Layout
2896 Jobs Corners Rd
Legend
Vestas 150
NW / 315°
W / 270°
SW / 225°
S / 180°
N / 360°
HOUSE
NE / 225°
E / 90°
SE / 135°
0
0.5
1
2
3
4
Miles

Questions Requiring Answers

The information presented in this report raises several questions concerning turbine operations, acoustic measurements, and the adequacy of the post-construction investigation at Baron Winds II.

1. Are there differences between the turbines installed in Baron Winds Phase I and Phase II that could affect acoustic emissions?

What differences exist in turbine design, blade configuration, operating speed, control systems, or other characteristics that may influence low-frequency sound and infrasound?

2. Has the combined operation of multiple turbines been adequately evaluated?

Could turbine spacing, alignment, simultaneous operation, terrain, or wind direction influence the acoustic conditions experienced at nearby residences?

3. Was the monitoring equipment capable of measuring the frequencies associated with the reported concerns?

What were the verified lower-frequency limits of the instruments and monitoring configurations used? Were frequencies below 10 Hz evaluated, and were appropriate frequency-specific or narrowband analyses performed?

4. Have the recorded pressure fluctuations been compared with actual turbine operating data?

Have measurements been evaluated alongside individual turbine operating status, rotor speed, power production, curtailment records, and meteorological conditions to determine whether recurring relationships exist?

5. Are the original monitoring records available for independent review?

Were raw, unweighted measurements retained, and can the original recordings and equipment configurations be provided for independent technical analysis?

6. Have complaints from affected residents been evaluated collectively?

Have the timing, locations, and reported conditions associated with DMM complaints been compared with turbine operation and weather data to determine whether recurring geographic or operational patterns exist?

These questions address the information needed to evaluate the reported conditions and determine whether the existing investigation adequately addressed the concerns raised by residents.

Requested Independent Review and Additional Testing

The observations, monitoring records, and unresolved questions presented in this report warrant a more comprehensive investigation into the conditions being reported near Baron Winds II.

I respectfully request that the New York State Department of Public Service undertake or arrange an independent technical review of the project's post-construction sound monitoring and complaint investigation.

Specifically, I request the following:

1. Independent Indoor and Outdoor Monitoring

Conduct simultaneous indoor and outdoor measurements at affected residences using appropriately calibrated instrumentation capable of evaluating low-frequency sound and infrasound, including frequencies below 10 Hz.

Testing should follow applicable recognized measurement procedures and account for wind conditions, background pressure fluctuations, and differences between indoor and outdoor environments.

2. Complete Disclosure of Monitoring Methods and Results

Provide the specifications and frequency response of the instruments used during post-construction monitoring, including calibration information, weighting, filtering, software configurations, and measurement procedures.

Make available the original recorded data and associated documentation necessary for independent technical review.

3. Comparison with Turbine Operational Records

Compare acoustic and atmospheric-pressure measurements with individual turbine operating records, including rotor speed, power output, operating status, and curtailment periods.

Meteorological information, including wind direction and wind speed, should be evaluated alongside these records to determine whether repeatable relationships exist.

4. Collective Review of Resident Complaints

Examine the timing, geographic distribution, and reported circumstances of DMM complaints to determine whether common patterns are associated with turbine operations, environmental conditions, or the simultaneous operation of multiple turbines.

Clarify the criteria used to determine when a complaint is considered resolved or administratively closed.

5. Review of Regulatory and Monitoring Requirements

Evaluate whether the existing post-construction monitoring methods and applicable sound standards adequately address the conditions being reported, particularly where frequencies below 10 Hz and residential habitability are involved.

This review should include consideration of the Town of Fremont wind law, relevant Article 10 certificate conditions, and recognized low-frequency sound and infrasound measurement standards.

The findings of this investigation should be documented and made available for independent technical review, with clear explanations of the methods used, results obtained, and questions that remain unresolved.

The purpose of this request is to obtain a thorough, transparent, and scientifically defensible investigation that addresses the conditions experienced by affected residents and provides a reliable basis for determining what further action may be necessary.

Conclusion

The circumstances documented in Fremont raise important questions about the adequacy of post-construction sound monitoring and the methods used to investigate complaints involving low-frequency sound and infrasound.

Since Baron Winds II began operating in late 2025, my household has experienced significant changes in our ability to live comfortably at our residence. On January 21, 2026, we relocated from our home, and as of October 2026, we have been unable to resume living there.

What began as an effort to understand the conditions affecting our home has developed into months of independent monitoring, research, documentation, and requests for additional investigation.

As wind energy technology continues to evolve, with taller towers, larger rotors, and increased generating capacities, it is important that environmental monitoring practices remain capable of evaluating the conditions experienced by nearby residents.

The questions raised in Fremont extend beyond whether a project satisfies a particular numerical sound limit. They concern whether the methods and instruments used during post-construction investigations are capable of evaluating the conditions residents are reporting.

I respectfully request a comprehensive, independent technical investigation that examines the available measurements, turbine operational records, meteorological conditions, and documented complaints.

The findings could help resolve the outstanding questions in Fremont and contribute to improved monitoring and complaint-response practices for future wind energy projects.

The fundamental question is not simply whether a project passes a sound-compliance test, but whether that test adequately measures the conditions being investigated.

References

ANSI/ASA S12.9-2016/Part 7 (R2025). *Quantities and Procedures for Description and Measurement of Environmental Sound, Part 7: Measurement of Low-Frequency Noise and Infrasound Outdoors in the Presence of Wind and Indoors in Occupied Spaces.* Acoustical Society of America.

ANSI/ASA S2.71-1983 (R2025). *Guide to the Evaluation of Human Exposure to Vibration in Buildings.* Acoustical Society of America.

Rust, M., & Koch, C. (2024). Performance comparison of measurement microphones and microbarometers for sound pressure measurements near wind power plants. *Journal of Low Frequency Noise, Vibration and Active Control, 43*(1), 418–428. https://doi.org/10.1177/14613484231200852

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New York State Department of Public Service. Case 15-F-0122, Baron Winds Wind Energy Project, Document and Matter Management System. https://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=15-f-0122

Raspberry Shake.
https://manual.raspberryshake.org/_downloads/RSGlobalTechnicalSpecificationsDocument.pdf

https://raspberryshake.org/news/raspberry-shake-basic-concepts/

Appendix A

UTC to EDT time Conversion Table

UTC	EDT Military	EDT Regular Time
0000	2000 previous day	8:00 PM previous day
0100	2100 previous day	9:00 PM previous day
0200	2200 previous day	10:00 PM previous day
0300	2300 previous day	11:00 PM previous day
0400	0000	12:00 AM
0500	0100	1:00 AM
0600	0200	2:00 AM
0700	0300	3:00 AM
0800	0400	4:00 AM
0900	0500	5:00 AM
1000	0600	6:00 AM
1100	0700	7:00 AM
1200	0800	8:00 AM
1300	0900	9:00 AM
1400	1000	10:00 AM
1500	1100	11:00 AM
1600	1200	12:00 PM
1700	1300	1:00 PM
1800	1400	2:00 PM
1900	1500	3:00 PM
2000	1600	4:00 PM
2100	1700	5:00 PM
2200	1800	6:00 PM
2300	1900	7:00 PM