

# Client: Ana Maria

**Condition:** Auditory Processing Disorder (APD)

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## Objective

The purpose of this Neurosonic Therapy program was to explore measurable and functional improvement in a client diagnosed with **Auditory Processing Disorder (APD)**—a condition characterized by difficulty distinguishing, separating, or interpreting sound sources in complex auditory environments. Ana Maria’s primary challenge involved **speech-in-noise perception**: she often became disoriented or unable to follow a conversation when multiple sound sources overlapped, such as simultaneous voices or background communication.

The therapeutic objective was to facilitate **realignment toward the client’s individual Voice Frequency Signature Profile (VFSP)**—specifically her **Resonant Pitch Point (RPP = F#  $\approx$  181.6 Hz)**—to restore vibratory coherence between auditory and neural processing systems. The approach was based on the working hypothesis that **microtonal variations in the voice reflect underlying brainwave irregularities**, and that corrective entrainment of these frequencies can promote **functional auditory reorganization**.

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## Method

Ten Neurosonic Therapy Sessions (NTS) were conducted over ten days. The first five sessions were performed live through a connected studio setup, allowing real-time voice data monitoring and immediate frequency calibration.

Each session was constructed using two analytical layers:

1. **Voice Frequency Signature Profile (VFSP)** — a baseline derived from six pre-program morning recordings to define the client’s personal vibratory spectrum and determine her average Resonant Pitch Point (RPP).
2. **Voice Frequency Evaluation (VFE)** — a pre-session recording to assess the client’s current neural–acoustic state.

From the combined VFSP and VFE data, the following elements were dynamically selected before each session:

- **Brainwave Frequencies (BWF):** Derived from the VFSP frequency map, identifying microtonal deviations linked to specific brainwave bands.
- **Musical Composition:** Chosen from J.S. Bach's *Well-Tempered Clavier* (WTK) to either elevate or lower the frequency field, guiding the client's voice resonance toward her original VFSP baseline.
- **Interval Structure:** Adjusted to reflect the direction of correction required—upward or downward—depending on the day's pre-session findings.

The process was grounded in the premise that **the voice acts as both a diagnostic reflection and a modulation interface of brain activity**. Neural oscillations are mirrored in the microtonal pattern of vocal output; by reshaping those patterns acoustically, the system entrains cortical networks back to their coherent baseline.

Pre- and post-session voice recordings were analyzed for **Concert Pitch (CP)** and **Resonant Pitch Point (RPP)** in relation to the VFSP. Variations in frequency clusters (strike counts across semitone bands) were used to evaluate the stability and focus of the vocal resonance field. Subjective verbal assessments were collected before and after each session. The full CP and RPP graphs accompany this report.

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## Results

Across the ten sessions, **CP values fluctuated between approximately 430 Hz and 449 Hz**, indicating sensitivity to conscious focus and momentary emotional tone. Over time, however, these oscillations diminished in amplitude, showing progressive stabilization around the baseline **CP = 431.8 Hz**.

**RPP patterns** revealed more significant neuroadaptive changes. Early sessions displayed broad clusters spanning up to three semitones, with multiple frequencies competing for dominance (e.g., E, F, F#). As the program progressed, post-session analyses demonstrated a clear consolidation toward narrower ranges and increased strike consistency—indicating enhanced resonance stability and reduced neural noise.

Functionally, these acoustic improvements translated into **observable gains in auditory performance**, particularly in environments with competing sound sources. The client demonstrated sustained attention and the ability to follow conversation in acoustically complex settings—an outcome consistent with **restored auditory figure-ground discrimination**. These behavioral indicators align with the measured stabilization of CP and RPP, supporting the interpretation that **neurosonic entrainment enhanced temporal**

**precision and selective auditory attention** through strengthened cortical–vocal coherence.

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## Interpretation

The converging evidence from voice data and functional feedback supports a **neuro-vocal coupling mechanism**: as cortical coherence improved, vocal microtonality stabilized, and vice versa. The shift from diffused clusters to concentrated frequency centers reflects **restoration of synchronization between auditory, motor, and attentional networks**.

From a neurological standpoint, the RPP represents a dynamic signature of subcortical timing and hemispheric balance. Its stabilization toward the VFSP baseline implies a measurable reorganization of neural phase alignment. Meanwhile, fluctuations in CP mirror the conscious and affective layer of response—momentary variations in focus, stress, or cognitive load.

Together, these findings illustrate two interdependent regulatory systems:

- **RPP (autonomic coherence)**: Deep vibratory alignment restoring baseline resonance.
- **CP (cognitive modulation)**: Conscious responsiveness reflecting attention and state variability.

The consistency of improvement across sessions indicates that **directed neurosonic entrainment through voice-based calibration can enhance central auditory processing**, validating the conceptual link between voice frequency dynamics and neural synchronization.

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## Conclusion

Ana Maria’s ten-session program demonstrates that **personalized Neurosonic Therapy**, guided by VFSP and VFE analysis, can produce both measurable and functional improvements in auditory processing. Objective voice metrics showed progressive stabilization of RPP and CP around her baseline; subjective results confirmed enhanced speech discrimination in noise—an outcome rarely achieved through conventional auditory training alone.

These findings highlight the potential of **voice-based neurosonic feedback** as a non-invasive modality for addressing auditory processing deficits. The alignment between vocal resonance and cortical coherence presents a new paradigm in neuroacoustic research, suggesting that the voice may serve not merely as an output of neural function, but as an active tool for its recalibration.