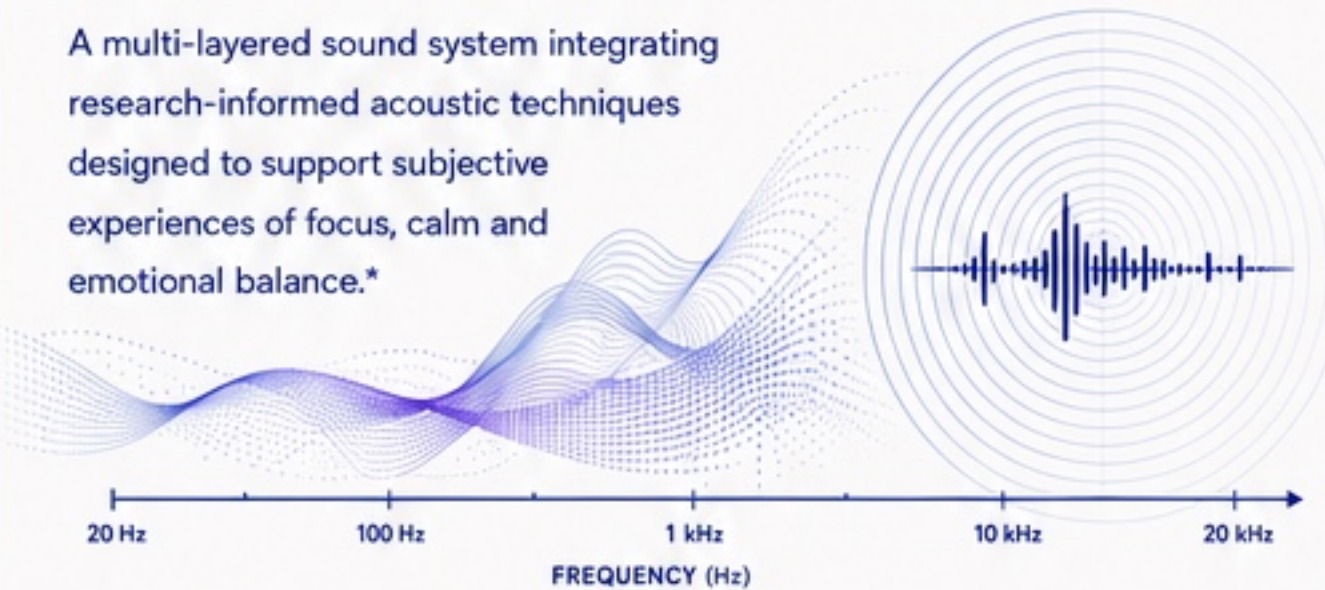


OPENSTATE_

NEUROACOUSTIC ARCHITECTURE

A multi-layered sound system integrating research-informed acoustic techniques designed to support subjective experiences of focus, calm and emotional balance.*



THE PRINCIPLE

Different acoustic features can influence perception, attention, arousal and affect through partly distinct mechanisms. When artfully combined, they are designed to create an integrated acoustic environment supporting subjective experiences of calm, focus and emotional balance.*



RHYTHMIC STIMULATION

Uses structured auditory rhythms and periodic stimulation studied for their potential effects on neural activity and psychological states.



AROUSAL MODULATION

Uses musical features associated in research with changes in arousal and relaxation responses.



ATTENTIONAL SUPPORT

Designed to support sustained attention and cognitive engagement.



EMOTIONAL INTEGRATION

Intentionally shapes emotional tone and supports positive emotional balance.

OUTCOMES OBSERVED IN PEER-REVIEWED RANDOMIZED CONTROLLED STUDIES OF RELEVANT AUDITORY INTERVENTIONS*

40%

OBSERVED REDUCTION IN DEPRESSIVE-SYMPTOM SCORES

Observed after 8 weeks of receptive music therapy plus usual care in older adults with type 2 diabetes and mild cognitive impairment.



Reference 1
Sun, R., Shen, Q., Liu, J., Chen, S., Fu, Y., & Zeng, X. (2026). *Frontiers in Neurology*, 17, 1735619.
doi: 10.3389/fneur.2026.1735619

26%

OBSERVED REDUCTION IN STATE-ANXIETY SCORES

Observed in a randomized controlled study of pre-operative patients listening to binaural-beat audio.



Reference 2
Padmanabhan, R., Hildreth, A. J., & Laws, D. (2005). *Anaesthesia*, 60(9), 874–877.
doi: 10.1111/j.1365-2044.2005.04287.x

16%

OBSERVED INCREASE IN MoCA COGNITIVE-ASSESSMENT SCORES†

Observed after 8 weeks of receptive music therapy plus usual care in older adults with type 2 diabetes and mild cognitive impairment.



Reference 1
Sun, R., Shen, Q., Liu, J., Chen, S., Fu, Y., & Zeng, X. (2026). *Frontiers in Neurology*, 17, 1735619.
doi: 10.3389/fneur.2026.1735619

*Calculated from published intervention-group MoCA means: 22.5 → 26.1 (16.0% increase).

*Headline percentages are outcomes observed in individual peer-reviewed randomized controlled studies of specific auditory interventions and populations; they are not expected effects of OPENSTATE_. Results vary across interventions, populations and listening conditions, and evidence for some proposed mechanisms, including neural entrainment, remains mixed. The integrated OPENSTATE_ system has not been independently clinically evaluated.

1. THE BUILDING BLOCKS

Eight core acoustic techniques working in harmony.

1 ALPHA-RANGE MODULATION ~8–12 Hz

Rhythmic modulation within the alpha-frequency range, associated with relaxed wakefulness and attentional processes.



RELAXED • CLEAR • FOCUSED

2 GAMMA-RANGE MODULATION ~30–80 Hz

Rhythmic modulation within gamma-associated frequency ranges, studied in relation to attention and information processing.



ALERT • INTEGRATED • INSIGHTFUL

3 CROSS-FREQUENCY RHYTHMIC ARCHITECTURE

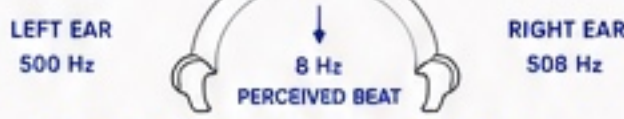
Multiple rhythmic modulation rates are layered across temporal scales.



BALANCED • COHERENT • ADAPTIVE

4 BINAURAL BEATS

Slightly different frequencies presented separately to each ear create the perception of a beat at their frequency difference; binaural beats have been studied for effects on anxiety and cognition.



PERCEPTUAL • RHYTHMIC • STUDIED

5 ISOCHRONIC TONES

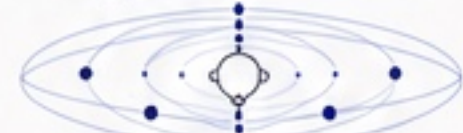
Regularly spaced auditory pulses create rhythmic acoustic stimulation that has been studied for effects on neural and psychological responses.



STEADY • RHYTHMIC • RELIABLE

6 SPATIAL AUDIO / BINAURAL PANNING

Spatialized sound creates directional movement and immersion, engaging auditory spatial-processing and orienting systems.



IMMERSIVE • REALISTIC • ENGAGING

7 DYNAMIC TEMPO MODULATION

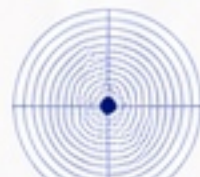
Intentional tempo changes are used to shape perceived arousal and transitions within the listening experience.



ADAPTIVE • FLOW • NATURAL

8 HARMONIC ARCHITECTURE

Tonal centers and harmonic relationships are intentionally selected to shape emotional character and perceived stability.



COHERENT • RESONANT • INTENTIONAL

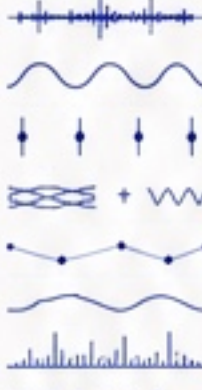
2. THE INTEGRATION

These techniques are layered to create a unified neuroacoustic environment.



- GAMMA LAYER
- ALPHA FOUNDATION
- ISOCHRONIC PULSES
- BINAURAL BEAT SIGNAL
- SPATIAL MOVEMENT
- TEMPO SHAPING
- FREQUENCY TUNING

High-frequency rhythmic modulation (~30–80 Hz), informed by research linking gamma-band neural activity with attention and information processing. Stable alpha-range rhythmic modulation (~8–12 Hz) designed to support calm, focused listening experience. Regular auditory pulses providing salient rhythmic and temporal structure and presence. Dynamic tempo changes guide the arc of arousal and energy flow. Harmonic tuning and tonality create coherence and resonance.



(Chosen for emotional character)

THE INTENDED EXPERIENCE (Design Goals)

- SUBJECTIVE CALM
- SUSTAINED ATTENTIONAL ENGAGEMENT
- POSITIVE EMOTIONAL TONE & BALANCE
- CONDITIONS FOR CREATIVITY & FLOW
- DEEPER CONTEMPLATIVE ENGAGEMENT

- ✓ Greater subjective calm
- ✓ Sustained attentional engagement
- ✓ Positive emotional tone and balance
- ✓ Conditions designed to support creativity and flow
- ✓ Deeper contemplative engagement

3. THE SCIENCE

A growing—but heterogeneous—body of research has examined these techniques.

STRESS REDUCTION

Meta-analyses of 480 RCTs found significant and moderate effects on anxiety, intervention on physiological (e.g., heart rate, blood pressure) and psychological (e.g., anxiety measured outcomes).¹

MOOD & WELL-BEING

Multiple RCTs show that music interventions can improve mood and reduce depressive symptoms in clinical and non-clinical populations.²

COGNITIVE PERFORMANCE

Research indicates positive effects of music and rhythmic auditory stimulation on attention, memory and executive function.^{3,4}

AROUSAL & PHYSIOLOGY

Music interventions are associated with changes in heart rate, blood pressure and other physiological markers of stress and arousal.⁵

EVIDENCE LIMITATIONS

Evidence for some mechanisms (e.g., EEG entrainment by binaural beats) is inconsistent across studies and requires further rigorous examination and research.⁶

DESIGNED WITH INTENTION. BACKED BY SCIENCE.

OPENSTATE_ is a research-informed sound architecture. The complete system itself has not yet been independently clinically evaluated; cited research pertains to its constituent acoustic and musical techniques.



1. Sun, R., Shen, Q., Liu, J., Chen, S., Fu, Y., & Peng, X. (2026). The effect of music interventions on anxiety in outpatients with major depressive disorder.

2. Padmanabhan, R., Hildreth, A. J., & Laws, D. (2008). A prospective music intervention to reduce anxiety: Effect of music on cognitive function.

3. de Witte, M., Seruut, A., van Heeren, S., Marissen, V., & Groen, G.-O. (2015). Effects of music on cognitive function.

4. Gerlie-Arghay, M., Sazoni, M. A., Robles, A. L., Danti, E. (2021). Efficacy of music auditory training on cognition.

5. Bradt, J., Dileo, C., McGill, L. R., Teague, S., Homer, R. (2014). Music interventions to reduce preoperative anxiety: Cochrane Review.

6. Seel, G., & Dubois, J. (2012). On EEG entrainment by binaural beats: offering methodologies and interpretations across studies.