QEEGCircuit

QEEG Assessment Report

Client Number: B01 **Map:** 1
Map Date: January 27, 2026
Report Type: Clinical

For this report, EEG was recorded from multiple locations across the scalp, digitally converted, and then statistically compared against an age- and gender-matched normative database. The dimensions of analysis were selected based on clinical relevance and established correlations with neurocognitive measures. Clinically and statistically, Eyes Closed (EC) is widely considered the primary baseline for QEEG analysis, but both conditions provide distinct, complementary clinical value.

Topographic Brain Maps (Absolute vs. Relative) — Colored head maps display the five component frequency bands (Delta, Theta, Alpha, Beta, Hi-Beta). Sensor sites are color-coded relative to normative reference data.
Absolute Magnitude (μV^2) measures the raw power of the signal. However, raw amplitude is highly influenced by non-clinical factors like skull thickness, electrode impedance, dehydration, or genetic low-voltage variants. If a patient has globally low power, their absolute maps will appear completely blue, which can mislead a clinician. Relative Magnitude (%) standardizes the data by calculating each band's proportion of the total power at that site, revealing the true balance of frequency bands.

Connectivity, Asymmetry & Speed Maps — Displays functional connectivity (coherence/synchronization between sensor pairs), hemispheric balance (asymmetry ratios), and peak brainwave speed (dominant frequency in Hz) across all channels.

Protocol Recommendations — Suggested neurofeedback training protocols derived from statistical analysis of the brain map. These protocols employ a bi-hemispheric compensatory targeting method based on over 30 years of research and clinical experience.

Summary Metrics — Quantitative indicators including Theta/Beta Ratio, cortical arousal indices, and power distribution metrics that provide a high-level overview of brain regulation.

Metabolic Correlations - Identifies EEG patterns that may be associated with nutritional or metabolic support considerations, based on published research correlations.

Intake Form - Clinical Correlations - Cross-references patient-reported symptoms with QEEG findings to identify validated neurophysiological patterns and generate targeted supplement and lifestyle recommendations.

Interpretation Narrative - A comprehensive written summary of the key findings, providing context and clinical perspective.

Normative Reference: Statistical comparisons in this report are based on the Cuban Normative EEG Database (Valdes et al., 1990) as implemented in the NeuroGuide system (Thatcher, 2010), with cross-validated U.S. samples. Age- and gender-matched reference values are used throughout.

The results and data displayed are intended for exploratory analysis only and should not be considered a medical diagnosis.

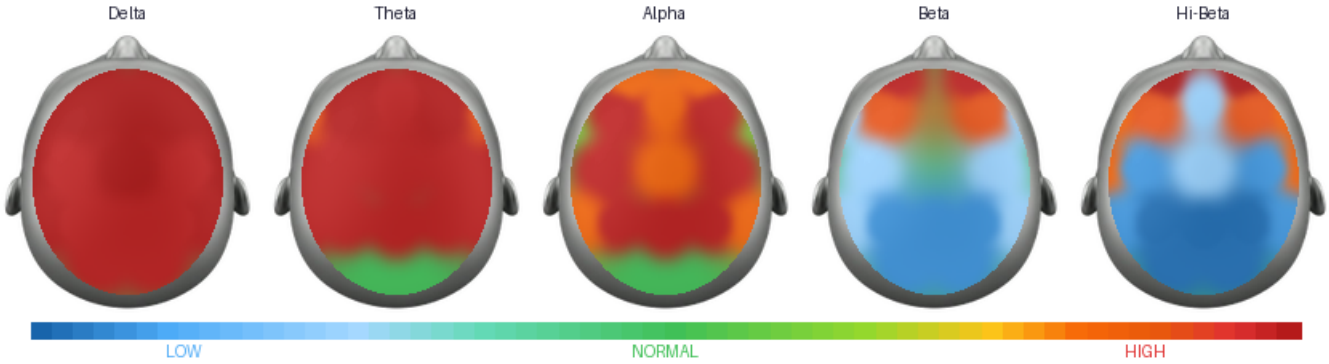
QEEGCircuit QEEG Assessment

Client:	Client B01	**Map Date:**	January 27, 2026
Map:	Map 1	**Session:**	Baseline

EYES OPEN ASSESSMENT

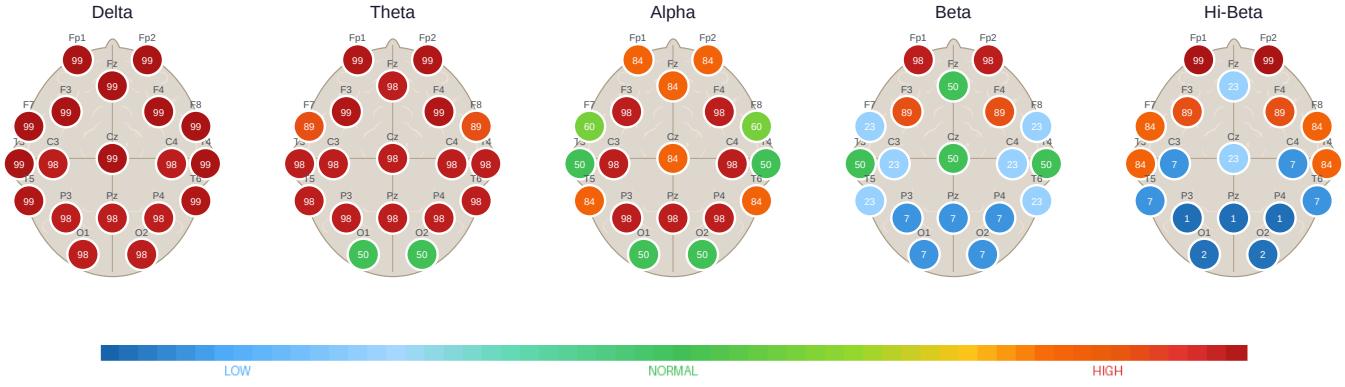
Eyes Open Absolute Magnitude

Absolute Magnitude shows each site's raw power compared to age-matched normative data. Percentile values indicate how each sensor ranks relative to a healthy population — green (normal), yellow/orange (mildly elevated), red (significantly dysregulated). This is the primary view for identifying focal brain wave abnormalities.



Sensor Detail — Absolute Magnitude

Numbered circles display percentile ranking at each sensor site. Green (25th–75th) = normal, Orange (75th–90th) = mildly elevated, Red (>90th) = significantly elevated, Blue (<10th) = suppressed.



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Primary Recommended Protocol

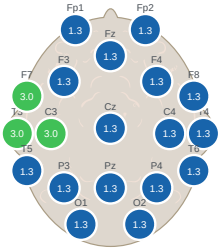
Protocol	Locations	Frequency	Glasses	Color	Eyes
#03	**P3-P4, C3-C4**	3+ sessions	Random (Disentr.)	Any	open

PRIMARY RECOMMENDED PROTOCOL
This protocol may help reduce slow wave (Delta, Theta, and Alpha) magnitude. Those with elevated broadband slow waves may exhibit any of the following symptoms: generalized cognitive slowing, chronic brain fog, fatigue, memory issues, lethargy, poor concentration, or post-concussion symptoms. **

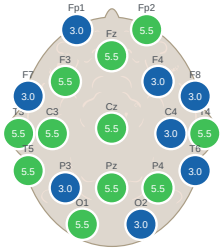
Eyes Open Dominant Frequency

Dominant Frequency identifies the peak brain wave speed (Hz) at each sensor location within each frequency band. Colors indicate whether the dominant frequency falls within the expected range (green), is abnormally slow (blue), or abnormally fast (red). Deviations may suggest cortical slowing, hyperactivation, or frequency instability.

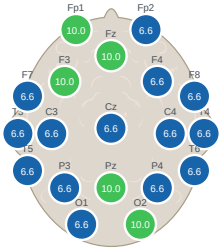
Delta



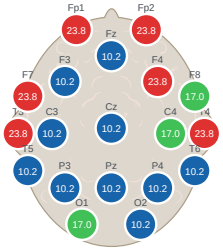
Theta



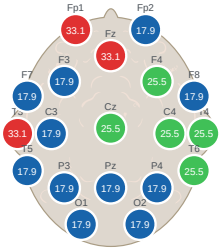
Alpha



Beta



Hi-Beta



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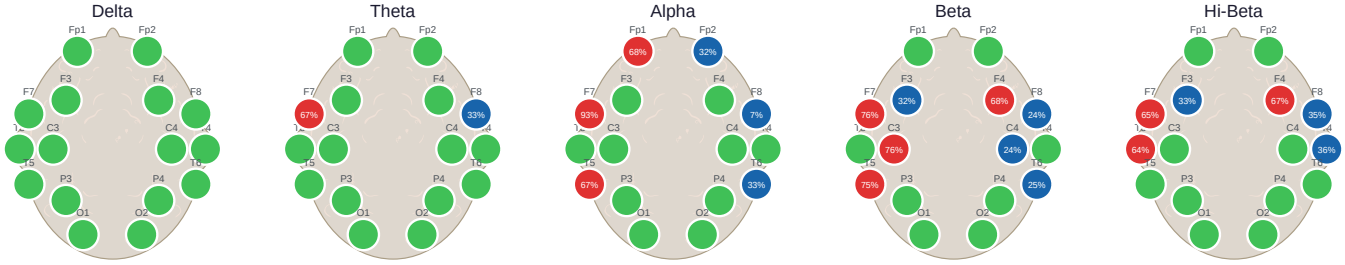
Eyes Open Interhemispheric Asymmetry

Asymmetry maps display the relative power distribution between homologous left and right sensor pairs. Each sensor shows its percentage share of the pair's total power. Green indicates balanced activity (< 10% difference). Blue or red indicates directional dominance, which may correlate with mood regulation, attentional bias, or lateralized dysfunction.



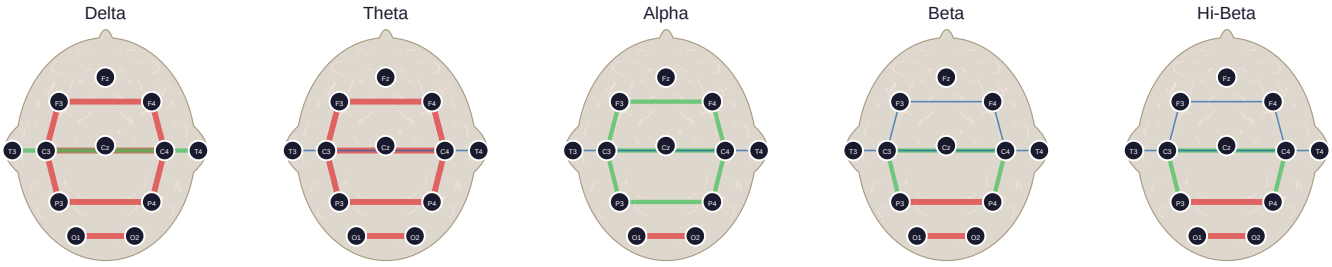
Asymmetry Protocols

Protocol	Locations	Frequency	Glasses	Color	Eyes
#20	**F3-F4**	12+ sessions	L14 R10	Blue or Green	open

RECOMMENDED ASYMMETRY PROTOCOL
This protocol may help reduce Alpha magnitude on the left and full Beta range on the right. Those with prominent hemispheric asymmetry may exhibit any of the following symptoms: severe emotional instability, anxiety, depressive episodes, fatigue, physical tension, or cognitive processing difficulties. **
*Asymmetry: Beta at F3-F4 (Left Share: 32%, Right Share: 68%, Dominant Hemisphere: **RIGHT**)*

Eyes Open Coherence

Coherence measures the degree of synchronization between sensor pairs. Green lines indicate normal inter-regional communication. Red lines suggest hyper-coherence (excessive coupling, often seen in anxiety or rigidity), while blue lines indicate hypo-coherence (poor connectivity, sometimes associated with traumatic brain injury or disconnection syndromes).



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Other Metrics — Eyes Open

Arousal Profile

Based on Gunkelman EEG phenotyping

Underarousal 90/100

Significant — well above functional range. Consider intervention.

Overarousal 42/100

Mild — within functional range but worth monitoring.

Uninhibited 70/100

Moderate — functional but may cause occasional difficulty.

Cognitive Efficiency

Composite: attention, processing speed, connectivity

79

Optimal

Attention 70

Processing 75

Connectivity 93

Alpha Peak Frequency

Normal adult: ~10 Hz - Slowed (<9 Hz): may indicate TBI or cognitive decline - Fast (>11 Hz): associated with high performers

Site	Left (Hz)	Right (Hz)	Average (Hz)
fp1_fp2	7.6440	7.9560	7.80
Fz-Cz	8.3300	8.6700	8.50
f7_f8	5.8065	6.0435	5.92
F3-F4	12.1520	12.6480	12.40
C3-C4	14.3080	14.8920	14.60
T3-T4	5.3900	5.6100	5.50
P3-P4	19.1100	19.8900	19.50
pz_mid	19.9920	20.8080	20.40
t5_t6	12.4460	12.9540	12.70
O1-O2	11.7600	12.2400	12.00

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Power Ratios — Eyes Open

Theta/Beta

Normal: 1.5–3.0

4.81

Site	Ratio	Status
fp1_fp2	1.68	Normal range
Fz-Cz	3.00	Normal range
f7_f8	4.21	Inattentive pattern (ADHD biomarker)
F3-F4	2.01	Normal range
C3-C4	3.79	Inattentive pattern (ADHD biomarker)
T3-T4	3.37	Inattentive pattern (ADHD biomarker)
P3-P4	8.80	Inattentive pattern (ADHD biomarker)
pz_mid	8.83	Inattentive pattern (ADHD biomarker)
t5_t6	5.31	Inattentive pattern (ADHD biomarker)
O1-O2	7.09	Inattentive pattern (ADHD biomarker)

Elevated TBR is a biomarker for inattention/ADHD. Low TBR may suggest hypervigilance or anxiety.

Alpha/Theta

Normal: 1.0–3.0

0.96

Site	Ratio	Status
fp1_fp2	0.48	Low relaxation / meditation capacity
Fz-Cz	0.59	Low relaxation / meditation capacity
f7_f8	0.51	Low relaxation / meditation capacity
F3-F4	0.87	Low relaxation / meditation capacity
C3-C4	1.18	Normal range
T3-T4	0.43	Low relaxation / meditation capacity
P3-P4	1.48	Normal range
pz_mid	1.59	Normal range
t5_t6	0.95	Low relaxation / meditation capacity
O1-O2	1.54	Normal range

Low Alpha/Theta suggests reduced relaxation capacity and difficulty achieving calm states.

Hi-Beta/SMR

Normal: 0.5–2.0

0.83

Site	Ratio	Status
fp1_fp2	2.20	Anxiety / rumination tendency
Fz-Cz	0.73	Normal range
f7_f8	1.38	Normal range
F3-F4	1.49	Normal range
C3-C4	0.36	Calm, focused state
T3-T4	1.36	Normal range
P3-P4	0.12	Calm, focused state
pz_mid	0.13	Calm, focused state
t5_t6	0.36	Calm, focused state
O1-O2	0.14	Calm, focused state

Elevated Hi-Beta/SMR is associated with rumination, anxiety, and difficulty disengaging from worry.

Delta/Alpha

Normal: 0.3–1.5

2.22

Site	Ratio	Status
fp1_fp2	3.40	Possible encephalopathy / injury marker
Fz-Cz	2.88	Possible encephalopathy / injury marker
f7_f8	4.05	Possible encephalopathy / injury marker
F3-F4	1.85	Possible encephalopathy / injury marker
C3-C4	1.26	Normal range
T3-T4	4.05	Possible encephalopathy / injury marker
P3-P4	0.90	Normal range
pz_mid	0.81	Normal range
t5_t6	1.53	Possible encephalopathy / injury marker
O1-O2	1.50	Normal range

Elevated Delta/Alpha may indicate cortical slowing from head injury or cognitive decline.

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Full List Of Training Protocols

Circuit Training Protocols

Protocol	Locations	Frequency	Glasses	Color	Eyes
#03	**P3-P4, C3-C4**	3+ sessions	Random (Disentr.)	Any	open

PRIMARY RECOMMENDED PROTOCOL
This protocol may help reduce slow wave (Delta, Theta, and Alpha) magnitude. Those with elevated broadband slow waves may exhibit any of the following symptoms: generalized cognitive slowing, chronic brain fog, fatigue, memory issues, lethargy, poor concentration, or post-concussion symptoms. **

Protocol	Locations	Frequency	Glasses	Color	Eyes
#04	**Fz-Cz, T5-T6, P3-P4**	4+ sessions	Random (Disentr.)	Any	open

This protocol may help reduce Delta and Theta magnitude. Those with elevated slow-wave activity may exhibit any of the following symptoms: traumatic brain injury (TBI), severe attention deficit, difficulty staying awake, cognitive processing deficits, brain fog, or memory encoding problems. **

Single Location Protocols

Protocol	Locations	Frequency	Glasses	Color	Eyes
#04	**Fz-Cz**	12+ sessions	Random (Disentr.)	Any	open

This protocol may help reduce Delta and Theta magnitude. Those with elevated slow-wave activity may exhibit any of the following symptoms: traumatic brain injury (TBI), severe attention deficit, difficulty staying awake, cognitive processing deficits, brain fog, or memory encoding problems. **
*Target: Delta+Theta at Fz-Cz (Z-Score: +2.25, Percentile: **98.8%**)*

Protocol	Locations	Frequency	Glasses	Color	Eyes
#03	**F3-F4**	12+ sessions	Random (Disentr.)	Any	open

This protocol may help reduce slow wave (Delta, Theta, and Alpha) magnitude. Those with elevated broadband slow waves may exhibit any of the following symptoms: generalized cognitive slowing, chronic brain fog, fatigue, memory issues, lethargy, poor concentration, or post-concussion symptoms. **
*Target: Delta+Theta+Alpha at F3-F4 (Z-Score: +2.25, Percentile: **98.8%**)*

Protocol	Locations	Frequency	Glasses	Color	Eyes
#04	**Fp1-Fp2**	12+ sessions	Random (Disentr.)	Any	open

This protocol may help reduce Delta and Theta magnitude. Those with elevated slow-wave activity may exhibit any of the following symptoms: traumatic brain injury (TBI), severe attention deficit, difficulty staying awake, cognitive processing deficits, brain fog, or memory encoding problems. **
*Target: Delta+Theta at Fp1-Fp2 (Z-Score: +2.38, Percentile: **99.1%**)*

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Protocol	Locations	Frequency	Glasses	Color	Eyes
#03	**C3-C4**	12+ sessions	Random (Disentr.)	Any	open

This protocol may help reduce slow wave (Delta, Theta, and Alpha) magnitude. Those with elevated broadband slow waves may exhibit any of the following symptoms: generalized cognitive slowing, chronic brain fog, fatigue, memory issues, lethargy, poor concentration, or post-concussion symptoms. **
*Target: Delta+Theta+Alpha at C3-C4 (Z-Score: +2.00, Percentile: **97.7%**)*

Protocol	Locations	Frequency	Glasses	Color	Eyes
#07	**Fp1-Fp2**	12+ sessions	L10 R18	Blue or Green	open

This protocol may help reduce HiBeta magnitude in both hemispheres using neurofeedback. Those with elevated HiBeta may exhibit any of the following symptoms: severe anxiety, hyperarousal, panic attacks, hyper vigilance, chronic stress, insomnia, sleep problems, muscle tension, OCD, emotional instability, increased heart rate, IBS, addiction, impulse control or mood swings. **
*Target: Hibeta at Fp1-Fp2 (Z-Score: +2.50, Percentile: **99.4%**)*

Protocol	Locations	Frequency	Glasses	Color	Eyes
#01	**O1-O2**	12+ sessions	Random (Disentr.)	Any	open

This protocol may help reduce Delta magnitude at the targeted location(s). Those with high Delta may exhibit any of the following symptoms: brain injury, ADHD, sleep disorders, depression, emotional dysregulation,mental fatigue, apathy, impaired decision making or balance issues. **
*Target: Delta at O1-O2 (Z-Score: +2.00, Percentile: **97.7%**)*

Asymmetry Protocols

Protocol	Locations	Frequency	Glasses	Color	Eyes
#20	**F3-F4**	12+ sessions	L14 R10	Blue or Green	open

RECOMMENDED ASYMMETRY PROTOCOL
This protocol may help reduce Alpha magnitude on the left and full Beta range on the right. Those with prominent hemispheric asymmetry may exhibit any of the following symptoms: severe emotional instability, anxiety, depressive episodes, fatigue, physical tension, or cognitive processing difficulties. **
*Asymmetry: Beta at F3-F4 (Left Share: 32%, Right Share: 68%, Dominant Hemisphere: **RIGHT**)*

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GLOBAL ASSESSMENT & INTAKE INTEGRATION

Metabolic Correlations

These are possible associations based on published EEG-metabolic research - not diagnostic conclusions. Always correlate with clinical history and laboratory work.

Frontal Theta Excess (weak confidence)

May be associated with cortisol dysregulation, blood sugar instability, or sleep deprivation.

-> Assess sleep hygiene, fasting glucose, and HPA axis function.

Global Delta Excess (moderate confidence)

May be associated with traumatic brain injury, neurodegenerative processes, or significant metabolic disruption.

-> Consider neurological evaluation and comprehensive metabolic panel.

■ **Toxic / Environmental Exposure Pattern** (moderate confidence)

Elevated Delta/Alpha Ratio (DAR) across multiple sites may indicate diffuse cortical slowing associated with environmental neurotoxin exposure. Common sources may include mold/mycotoxins, heavy metals (lead, mercury), and volatile organic compounds (solvents, formaldehyde).

-> Consider mycotoxin urine panel, heavy metal screening (blood/urine), and assess home/work environment for mold or chemical exposure.

■ **Diffuse Theta Excess (Post-Viral / Encephalopathy)** (moderate confidence)

Elevated Theta activity across multiple brain regions (not limited to frontal) has been observed as a pattern in toxic encephalopathy or post-viral neurological fatigue. This pattern may be associated with Long-COVID, Lyme disease, Epstein-Barr Virus (EBV) reactivation, chronic fatigue syndrome (ME/CFS), and immune system dysregulation.

-> Consider testing for stealth infections (Lyme/co-infection panel, EBV titers, CMV, HHV-6), immune markers (NK cell function, cytokine panel), and post-viral fatigue screening.

Interpretation

Unknown Hibeta is HIGH (EO)

Unknown Hibeta activity is elevated compared to normative values (Z = 2.5).

Global Delta is HIGH (EO)

Elevated Delta activity across multiple brain regions may indicate generalized cortical slowing. Potential symptoms: Memory issues, cognitive processing difficulties, traumatic brain injury (TBI), brain fog, fatigue, attention/focus issues.

Multi_region Hibeta is LOW (EO)

Multi_region Hibeta activity is reduced compared to normative values (Z = -2.16).

Global Theta is HIGH (EO)

Elevated Theta activity globally may indicate inattention, daydreaming, cognitive inefficiency, processing speed issues. Potential symptoms: Memory issues, focus and attention difficulties.

Unknown Beta is HIGH (EO)

Unknown Beta activity is elevated compared to normative values (Z = 2.0).

Global Alpha is HIGH (EO)

Elevated Alpha activity globally may indicate: excessive internal focus, dissociation, anxiety, rumination, sleep deficits, low motivation, depression, thyroid issues or inflammation.

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Disclaimer

The data presented in this report was generated as a result of a Quantitative Electroencephalogram (QEEG) assessment submitted by the ordering clinic. All findings represent statistical comparisons between the recorded brainwave data and a normative database of age- and gender-matched individuals.

The functional significance of identified items is derived from the peer-reviewed research literature in neurology and brain imaging, which establishes correlations between anatomical locations and brain functions. Multiple sensor sites are analyzed across several dimensions, including absolute magnitude, relative magnitude, dominant frequency, coherence, phase, and asymmetry. These measurements are statistically weighted and scored to assess their significance.

The results and data displayed are intended for exploratory analysis only and should not be considered a medical or psychological diagnosis. Items indicated as areas of potential functional concern are based on probability measures and may include both false positives and false negatives. These probability measures indicate the likelihood of a pattern being present but do not indicate the severity of clinical significance. Results represent statistical comparisons against established norms and should not be used as the sole basis for clinical decision-making.

This report is intended for the purposes of evaluation and potential treatment planning with respect to QEEG-guided neurofeedback or related neuromodulation methods.

References & Sources

1. Valdés, P., et al. (1990). "Frequency domain models of the EEG." Brain Topography, 2(4), 309-319. — Cuban Normative EEG Database.

2. Thatcher, R.W. (2010). "Normative EEG Databases and BCI." In Brain-Computer Interfaces. Springer. — NeuroGuide normative reference based on the Cuban Normative Database with cross-validated U.S. samples.

3. Budzynski, T.H., Budzynski, H.K., Evans, J.R., & Abarbanel, A. (2009). Introduction to Quantitative EEG and Neurofeedback. Academic Press.

4. Johnstone, J., Gunkelman, J., & Lunt, J. (2005). "Clinical Database Development: Characterization of EEG Phenotypes." Clinical EEG and Neuroscience, 36(2), 99-107.

5. Hammond, D.C. (2010). "The Need for Individualization in Neurofeedback." Journal of Neurotherapy, 14(1), 27-46.