

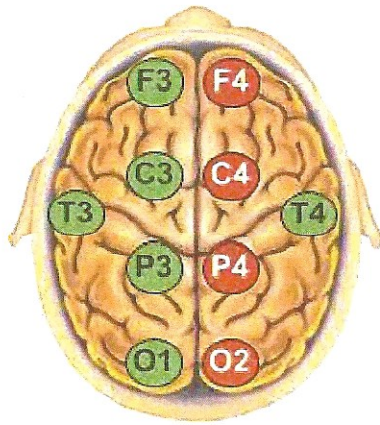


# QEEG Summary Assessment Report

Client Number: Mohammed\_Banat

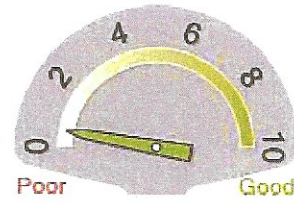
Map Date: 1/24/2018

Client Map



Abnormal

Cognitive Efficiency

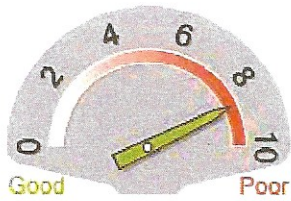


CEC	EEG	Symptom
High	High	Attention
Moderate	High	Verbal Processing
Moderate	High	Decision Making
Moderate	High	Visual Processing
Low	High	Motivation
Moderate	High	Reading Comprehension
Moderate	High	Problem Solving
Moderate	Moderate	Math Comprehension
High	High	Memory

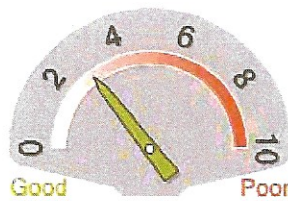
Probability Legend

Low Moderate High

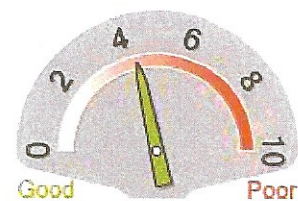
Global - Underactivated



Global - Inhibited



Global - Overactivated



Local - Neurogenic

CEC	EEG	Symptom
High	High	Impulsive
High	High	Easily Distracted
Moderate	High	Excessive Speech
Moderate	High	Hyper-emotional

CEC	EEG	Symptom
Moderate	High	Anger
Moderate	High	Self-Deprecation
Moderate	High	Agitation
Moderate	High	Passive Aggressive

CEC	EEG	Symptom
Moderate	High	Hyper-vigilant
Moderate	Moderate	Obsessive Thinking
Moderate	Moderate	Dislike of Change/Novelty
Moderate	High	Excessive Rationalization
Moderate	High	Restless

Probability Legend

Low Moderate High

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Supplements Analysis

Suggested Supplements
Acetyl L-Carnitine
Choline
Inositol
L-Tyrosine
Omega-3s
Pantothenic Acid
Vitamin Bs
Vitamin C
Vitamin E
Zinc

Metabolic Analysis

Probability Score	Metabolic Category	Symptoms Reported
3	Kidney	Dry mouth Fatigue
2	Thyroid (hypo)	Fatigue
2	Cardio-Vascular	Fatigue
1	Adrenals	Fatigue
1	Liver	Fatigue
1	Gastrointestinal	Abdominal bloating
1	Blood Sugar	Numbness
1	Somatic	Numbness

Probability Legend

● Minimal   
 ● Low   
 ● Moderate   
 ● High

The items listed below appear as a result of an agreement occurring between the individual's endorsement of items on a subjective rating scale and items identified from the brainmap as being related to the same problem and operating outside a typical range of electrophysiological activity. The functional significance of items identified from the brainmap are derived from the research literature in neurology and brainimaging studies identifying correlations between anatomical locations and brain functions. Multiple locations inspected through multiple dimensions of analysis including magnitude, dominant frequency, coherence, phase and asymmetry are statistically weighted and scored to assess their significance with respect to each item endorsed.

The items indicated by the maps as being likely to be areas of functional difficulty are based on probability measures and consequently may provide false positives and false negatives. As probability measures, they do not indicate level of item severity but only level of probability that the problem is present. This does not in any manner constitute a diagnosis and should not be used for purposes of medical or psychological diagnoses. They only represent comparisons between the existing map and similar maps of other individuals with confirmed diagnoses or similar processes in these areas. This map is intended for the sole purpose of evaluation and training with respect to EEG Biofeedback.

The results of this report indicate a significant probability of problems in the following areas:

**Emotional**

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**Inhibited** - Individuals who show significant asymmetry with alpha higher in the left hemisphere than in the right hemisphere typically display many of the symptoms listed in the dashboard. Although other factors such as elevated alpha magnitude, slowed dominant frequency and increased coherence also contribute to these factors, the overall dominant feature is alpha asymmetry. Most individuals begin to develop progressively more negative moods and/or irritability when they are anxious and fearful for sustained periods of time and as they begin shifting into more inhibited and avoidant behaviors. This fearfulness and irritability translates into passive aggressive behavior, angry outbursts, spontaneous episodes of tearfulness and weeping that revolve around excessive self-concern and rumination regarding a sense of powerlessness to correct situations that generate feelings of being victimized or unjustly used. Self-deprecation in the form of negative self-talk and negative expectations regarding performance in social situations is common. In its worst form features of severe clinical depression emerge including social isolation, suicidal ideation, total loss of motivation and episodes of self-inflicted pain or self-harm.

**Overarousal** - Individuals displaying significant asymmetry with beta higher in the right hemisphere than the left hemisphere typically display symptoms of hyperarousal related to anxiety. The primary factors besides asymmetry that frequently contribute to this dimension of analysis include elevated beta magnitude, fast dominant frequency beta and excessive beta hypercoherence. Features typically associated with this dimension include excessive worry, hyper-vigilance, discomfort with transitions or changes, excessive rationalization and hyper-mentation, restlessness, agitation and diminished emotional self-awareness. Individuals may often feel emotionally numb or disconnected and in extreme forms may experience de-realization, dissociation from their body and panic attacks or tics. These features may often be accompanied by a wide range of physiological symptoms including headaches, insomnia, high blood pressure, and reduced immune function. Overarousal is typically a consequence of chronic demand on the CNS to respond to fear inducing events and social distress. Individuals tend to reduce their level of social interaction and their expression of personal emotion to protect themselves. Over time their physiological exhaustion can lead to episodes of inhibited behavior and social isolation resulting in moodiness, irritability and depression.

**Underarousal** - Underarousal refers to a neurophysiological state of diminished cognitive and emotional function characterized by a dominance of delta or theta globally or in broad regions of the brain. When focal abnormalities in these frequencies occur it may indicate lesions in the grey or white matter due to physical trauma such as TBI or stroke. Recent findings suggest that severe emotional trauma and hypersensitivity to some foods or allergens can enhance diffuse abnormalities in these frequency ranges as well. Frontal slowing in particular can result in impulsive behavior that tends to manifest physically in children and more socially or emotionally in adults. This often results in socially inappropriate behavior and hyperactivity. Other features related to this condition included excessive speech and hyper-emotionality. Individuals with excessive underarousal are frequently disorganized and easily distracted.

## Executive Processing

Executive processing involves aspects of cortical functioning critical for learning and developing skills for accurate and successful social interaction. Abilities related to conscious orienting and focusing, discriminating and evaluating, planning, generating novel adaptive behaviors while inhibiting previously unsuccessful behaviors and task execution are native to this dimension of processing. Regulating and filtering unwanted perceptual and emotional information is also a critical aspect of executive functioning.

## Verbal Processing

Verbal processing describes a category of skills, listed below, that lead to accurate comprehension and communication and that contribute to building strong social relationships leading to a sense of identity and fulfillment. Verbal processing is important for learning social norms and mores that define the meaning of circumstances and lead to effective problem solving behaviors. Deficits in verbal processing lead to the acquisition of faulty information that undermines effective categorization, decision making and problem solving. This limits the individual's ability to access social resources because of continual errors and social inaccuracy. The consequence is discouragement from unfulfilled expectations and frustration due to unnecessary conflict. This especially applies to aspects of academic performance that include paying attention, carrying out multi-step directions, processing information at an appropriate speed for a given task, difficulty with reading, comprehension, vocabulary and following rules leading to successful conduct in class.

## Math Comprehension

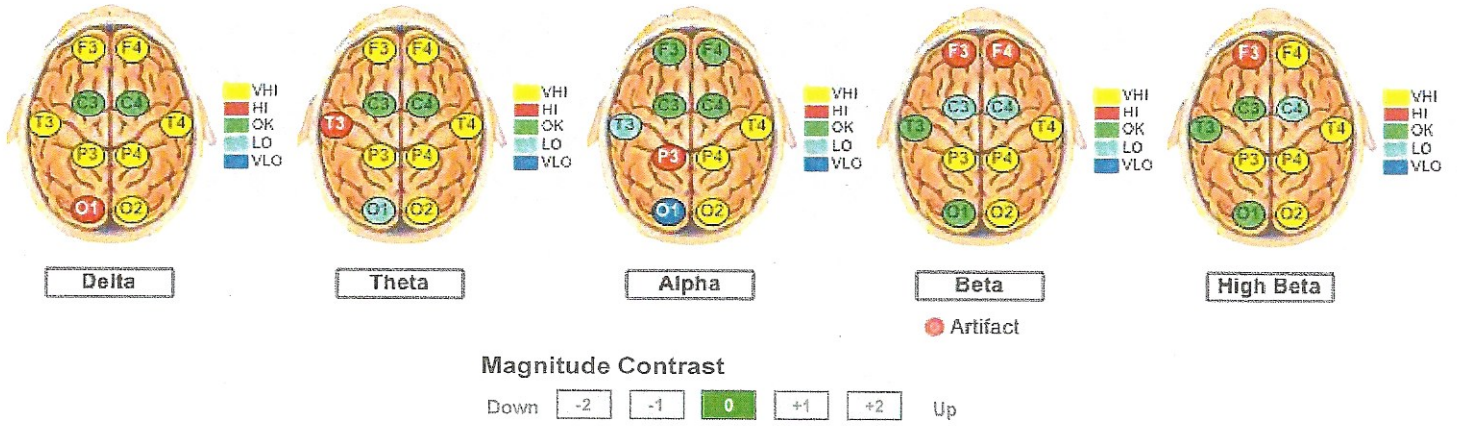
## Memory Processing

Memory processing has many dimensions and it is not unusual for individuals to be strong in several dimensions and weak in only one or two. Many of these dimensions are critical for academic performance and the tasks and procedures relating to technical and professional job positions. Difficulties with memory can also lead to misunderstandings and conflicts in personal relations and intimate relationships. It is not unusual for individuals to have a mild deficit and not be aware of the deficit and how it is undermining their effort to conduct their daily life successfully. Learning new skills and remembering schedules is critical to activities of daily living. Common key dimensions which may not be optimally functioning are listed below.

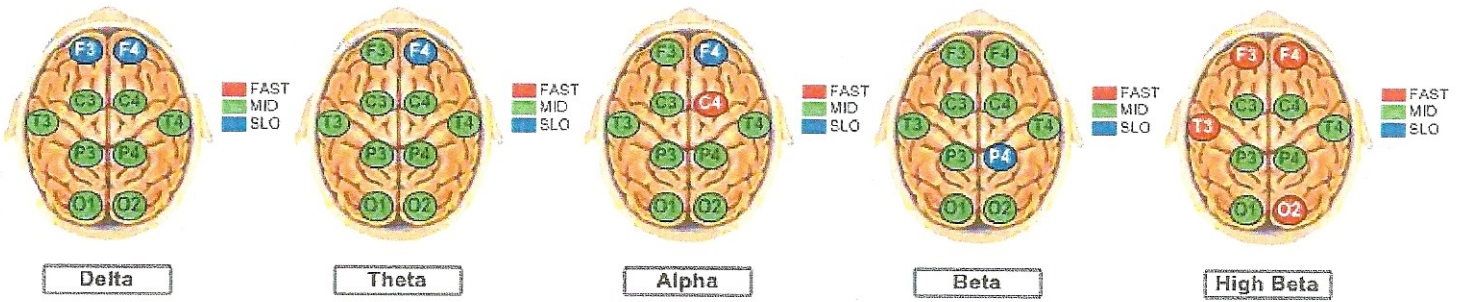
## Visual Processing

Human beings are predominantly visual in their orientation to the world and this aspect of human perception is deeply reflected in how the brain processes information. Important visual information is embedded in every aspect of social life involving the correct identification of meaning related to color, texture, form, motion, and spatial awareness. Difficulties in these subtle areas of processing often go undetected by the individual and others relating to them. They can undermine all aspects of social interaction as well as psychological dimensions of self-efficacy and self-esteem. Performance in academics, sports, and careers in general is often critically affected by this dimension.

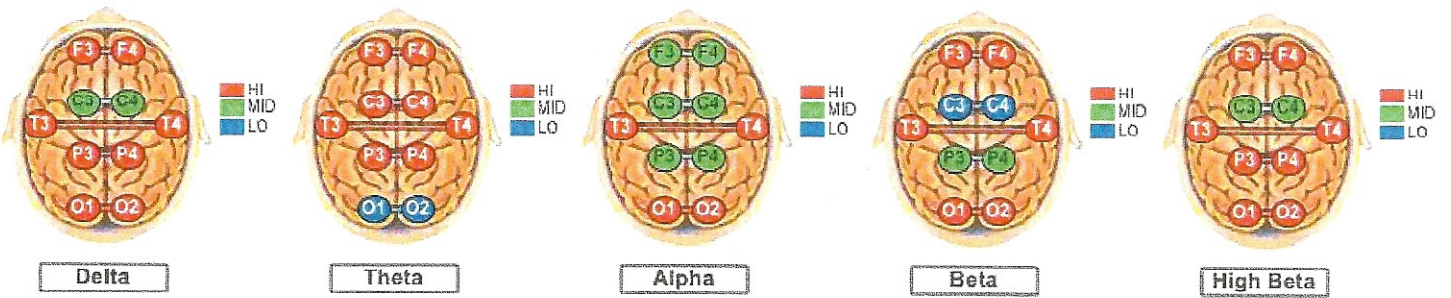
agnitude



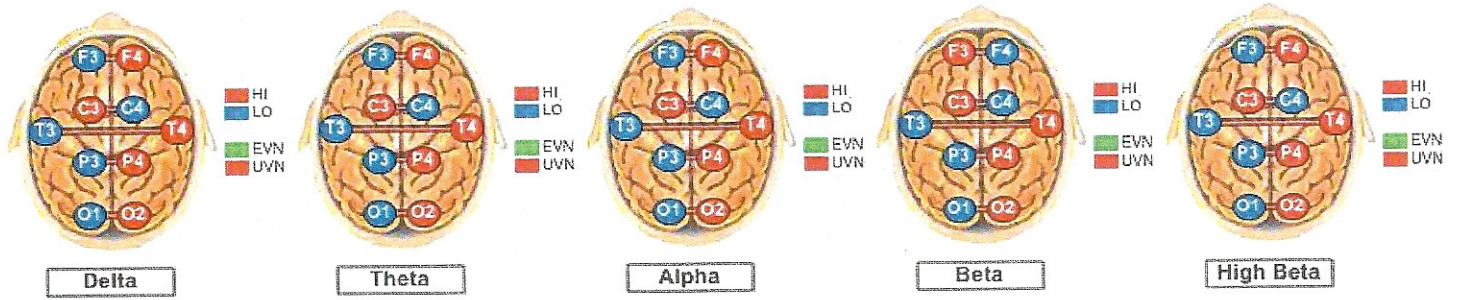
Dominant Frequency



Inter-Connectivity

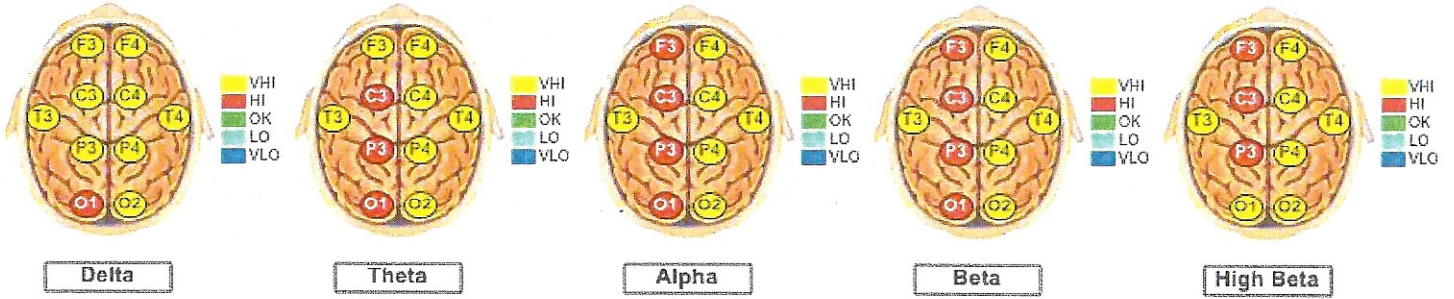


symmetry



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agnitude



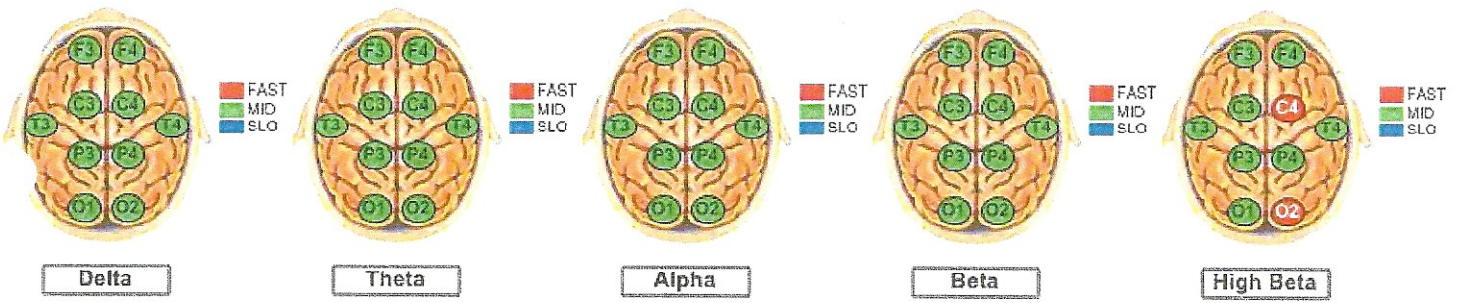
● Artifact

Magnitude Contrast

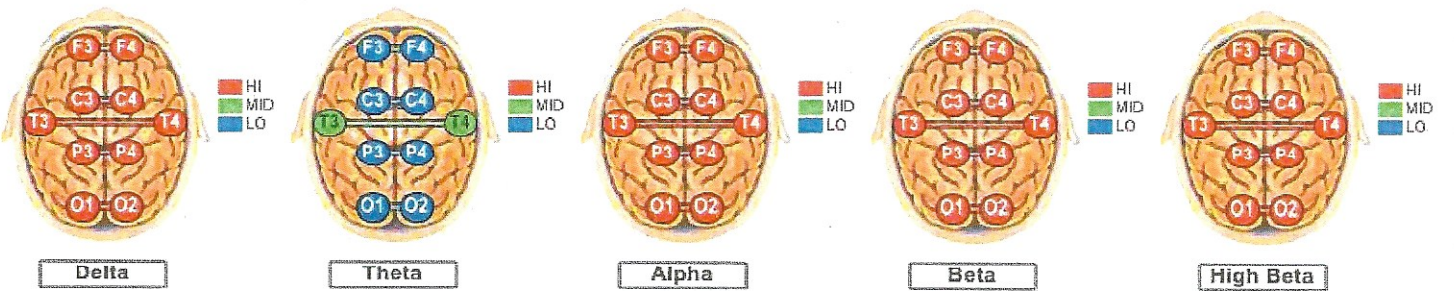
Adjust Down Suggested

Down      Up

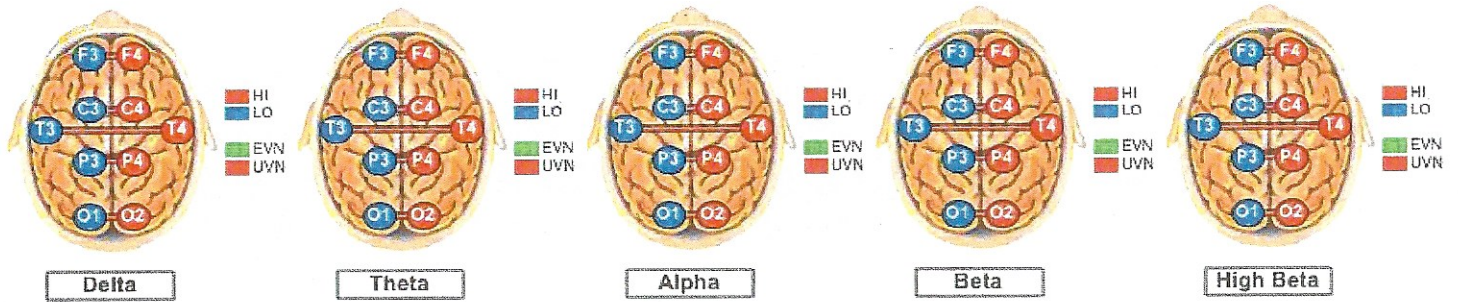
Dominant Frequency



Inter-Connectivity



symmetry



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Two Channel Protocol Suggestions - Based on Eyes Open Map

Protocol #	Left Protocol	Right Protocol	Sites	Entrainment Frequency	Entrainment Color
10	2-12d 15-20u	15-30d 13-15u	P3/P4	14Hz Left / 18Hz Right	Yellow
3	2-12d 15-20u	2-12d 13-15u	C3/C4	14Hz Left / 18Hz Right	Yellow

Two Channel Protocol Suggestions - Based on Eyes Closed Map









Protocol #	Left Protocol	Right Protocol	Sites	Entrainment Frequency	Entrainment Color
3	2-12d 15-20u	2-12d 13-15u	T3/T4	14Hz Left / 18Hz Right	Yellow
10	2-12d 15-20u	15-30d 13-15u	O1/O2	12Hz Left / 18Hz Right	Yellow

**IMPORTANT NOTE:** If a patient has a history of epileptic seizures or photic sensitivity you should avoid using the photic lights. You may still run treatment protocols without the photic lights. If a protocol suggests that you use yellow glasses on a client and they have reported symptoms of anxiety use green instead of yellow. Protocol suggestions should not be considered as treatment or cure for any medical conditions.





Supplements Analysis

Suggested Supplements
Acetyl L-Carnitine
Choline
Inositol
L-Tyrosine
Omega-3s
Pantothenic Acid
Vitamin Bs
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## Reading Comprehension

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EEG Readings

Eyes Open EEG Readings				
Site	Delta	Theta	Alpha	Beta
C3	15.805	10.226	8.377	7.389
C4	76.526	56.239	46.833	44.711
Cz	59.732	43.541	39.184	32.276
F3	13.456	9.496	8.104	7.024
F4	67.087	55.013	47.449	42.746
Fz	10.677	7.164	6.369	5.206
O1	15.068	11.395	10.225	7.718
O2	68.554	60.826	55.715	43.601
P3	15.994	12.194	10.157	7.351
P4	71.194	62.223	52.918	41.782
T3	15.091	10.962	9.662	7.605
T4	73.271	59.320	54.746	43.915

Eyes Closed EEG Readings				
Site	Delta	Theta	Alpha	Beta
C3	11.411	9.355	13.540	4.927
C4	10.171	7.178	12.092	4.229
Cz	37.308	16.933	9.703	6.271
F3	58.702	20.253	12.764	9.494
F4	60.882	22.564	14.012	9.279
Fz	23.188	11.567	8.579	8.231
O1	12.469	8.147	7.081	6.008
O2	67.411	48.787	44.992	39.104
P3	76.153	50.459	26.938	18.803
P4	79.692	53.926	44.102	30.577
T3	13.688	9.561	7.339	5.746
T4	67.834	54.447	45.299	39.208

Eyes Open Dominant Frequency				
Site	Delta	Theta	Alpha	Beta
C3	1.685	5.086	9.779	17.273
C4	1.711	5.088	9.778	17.265
Cz	1.691	5.202	9.836	17.389
F3	1.710	5.159	9.714	17.278
F4	1.764	5.241	9.789	17.385
Fz	1.689	5.246	9.809	17.348
O1	1.720	5.260	9.673	17.234
O2	1.782	5.266	9.735	17.236
P3	1.724	5.237	9.629	17.497
P4	1.799	5.254	9.758	17.454
T3	1.719	5.243	9.918	17.356
T4	1.807	5.313	9.930	17.343

Eyes Closed Dominant Frequency				
Site	Delta	Theta	Alpha	Beta
C3	1.775	5.341	10.380	17.142
C4	1.723	5.185	10.687	17.270
Cz	1.593	5.080	9.903	16.845
F3	1.350	4.935	9.713	17.492
F4	1.400	4.896	9.597	17.401
Fz	1.603	5.215	9.782	16.787
O1	1.658	5.026	9.797	17.280
O2	1.737	5.148	9.767	17.362
P3	1.791	5.137	9.621	17.298
P4	1.739	5.015	9.822	17.090
T3	1.673	5.110	9.793	17.392
T4	1.752	5.227	9.735	17.520

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