

# QEEG Clinical Report

EEGLens



The QEEG report is provided by NPCindex Company, operating under the QEEGhome brand.

## Personal Data:

Name: Mohsen Karimiyan

Gender: Male

Age: 1995-09-11 - 30.1

Handedness: Right

## Clinical Data:

Initial diagnosis: ADHD-Anxiety

Medication: Atomoxetine-Sertraline

Date of Recording: 2025-10-06

Source of Referral: Panah Clinic

This case belongs to Panah Clinic

Figure 1 displays topographic maps of EEG power and generation source for two groups: EC (Encephalopathy Control, n=10) and EO (Encephalopathy Onset, n=10). The figure is organized into two main sections, EC and EO, each containing three rows of brain maps: Absolute Power, Relative Power, and Generation Source. The columns represent different frequency bands: Delta, Theta, Alpha, Beta, and H-Beta.

**EC Group:**

- Absolute Power:** Shows power distribution across the five frequency bands. Delta and Theta bands show higher power in the posterior region, while Alpha, Beta, and H-Beta bands show higher power in the anterior region.
- Relative Power:** Shows the relative power distribution across the five frequency bands. Delta and Theta bands show higher power in the posterior region, while Alpha, Beta, and H-Beta bands show higher power in the anterior region.
- Generation Source:** Shows the generation source of the power. Delta and Theta bands show higher power in the posterior region, while Alpha, Beta, and H-Beta bands show higher power in the anterior region.

**EO Group:**

- Absolute Power:** Shows power distribution across the five frequency bands. Delta and Theta bands show higher power in the posterior region, while Alpha, Beta, and H-Beta bands show higher power in the anterior region.
- Relative Power:** Shows the relative power distribution across the five frequency bands. Delta and Theta bands show higher power in the posterior region, while Alpha, Beta, and H-Beta bands show higher power in the anterior region.
- Generation Source:** Shows the generation source of the power. Delta and Theta bands show higher power in the posterior region, while Alpha, Beta, and H-Beta bands show higher power in the anterior region.

The color scale for Absolute Power ranges from 0 (blue) to 10 (red). The color scale for Relative Power ranges from 0 (blue) to 10 (red). The color scale for Generation Source ranges from 0 (blue) to 10 (red).

| Group         | Probability |
|---------------|-------------|
| Non-responder | ~0.85       |
| Responder     | ~0.35       |

AdultADHD 55.59%

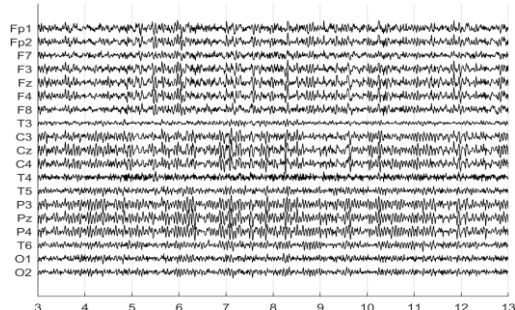
| Comorbidity       | Percentage |
|-------------------|------------|
| Depression        | 54.55%     |
| Anxiety           | 36.36%     |
| BMD               | 63.64%     |
| CognitiveProblems | 0%         |

| Neuromarker        | Region    | Value | Assessment |
|--------------------|-----------|-------|------------|
| APF - EO           | Frontal   | 08.75 | Low        |
| AFP - EC           | Frontal   | 08.75 | Low        |
| APF - EO           | Occipital | 08.75 | Low        |
| AFP - EC           | Occipital | 09.00 | Low        |
| Arousal Level - EO | -         | -     | Low        |
| Arousal Level - EC | -         | -     | Low        |

## Denoising Information

Eye Close

Raw EEG



Rejected Channel



**Total Recording Time Remaining:**

247.69 sec

**Number of Eye and Muscle Elements**

Eye: 2

Muscle: 1

Low Artifact Percentage



High Artifact Percentage

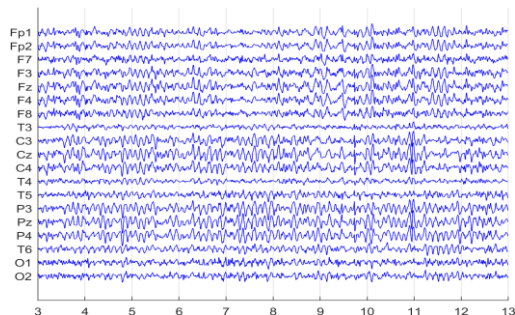


Total Artifact Percentage



**EEG Quality:** perfect

Denoised EEG

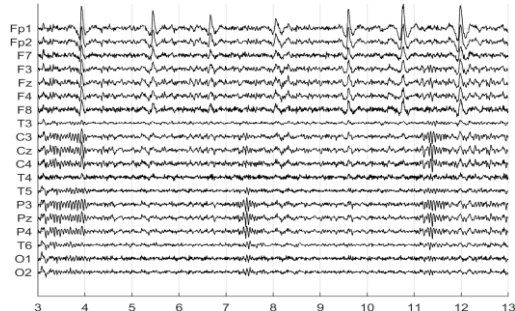


Flat Channel



Eye Open

Raw EEG



Rejected Channel



**Total Recording Time Remaining:**

225.83 sec

**Number of Eye and Muscle Elements**

Eye: 1

Muscle: 3

Low Artifact Percentage



High Artifact Percentage

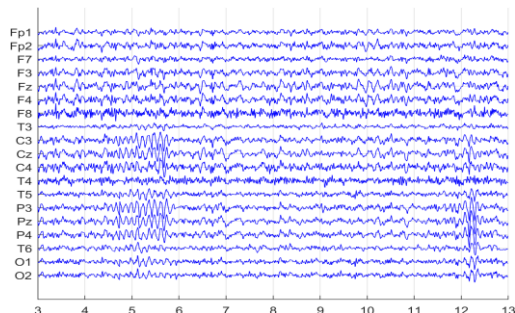


Total Artifact Percentage



**EEG Quality:** perfect

Denoised EEG

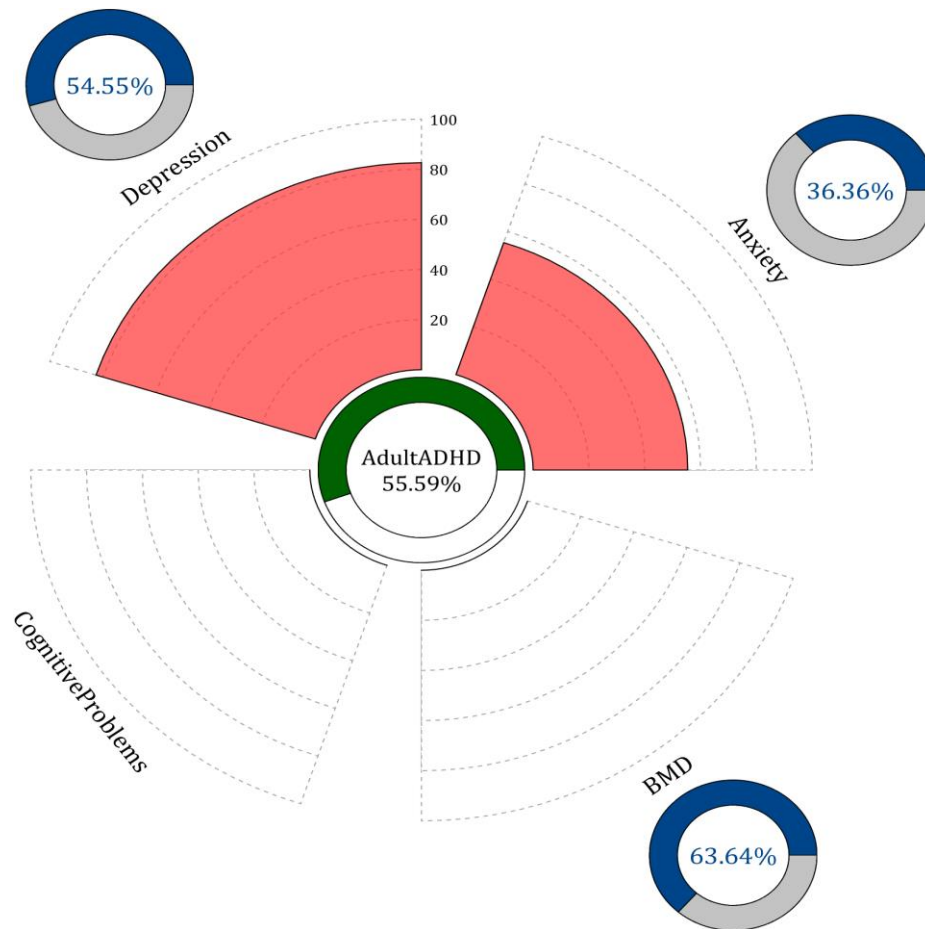


Flat Channel



## Pathological Assessment

Main Diagnosis: Adult ADHD



### Description

According to the guidelines, the initial diagnosis of adult ADHD could have comorbidities such as **alcohol abuse, anxiety, and depression**. It also differentially diagnoses with **depression, anxiety, and BMD**.

In the above graph, the **red area** shows the percentage of each comorbidity from your patient's EEG markers. Observe that each comorbidity marker is not unique and can be shared with other comorbidities.

Side circles in the above graph represent the differential diagnosis between depression and its misdiagnosis conditions based on your patient's EEG markers and trained artificial intelligence. The differential diagnosis probability is represented by **the bold blue bars** in the circles, and the probability of depression is represented by the **gray bars**.

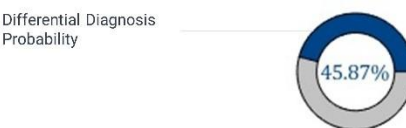
**Note:** In case your patient has drug abuse, obtain the substance abuse pathologic page of QEEGhome by registering the diagnosis under the initial diagnoses section of the website.

#### References:

Sadock, B. J., Sadock, V. A., & Ruiz, P. (Eds.). (2025). Kaplan and Sadock's comprehensive textbook of psychiatry (11th ed., Vols. 1–2). Wolters Kluwer  
 Sadock, B. J., Sadock, V. A., & Ruiz, P. (2022). Kaplan and Sadock's synopsis of psychiatry: Behavioral sciences/clinical psychiatry (12th ed.). Wolters Kluwer

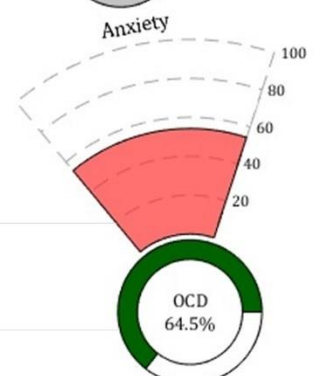
### User Manual

Differential Diagnosis Probability

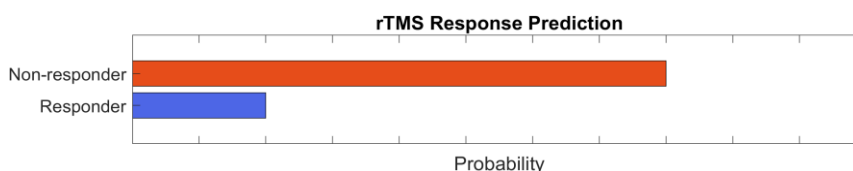
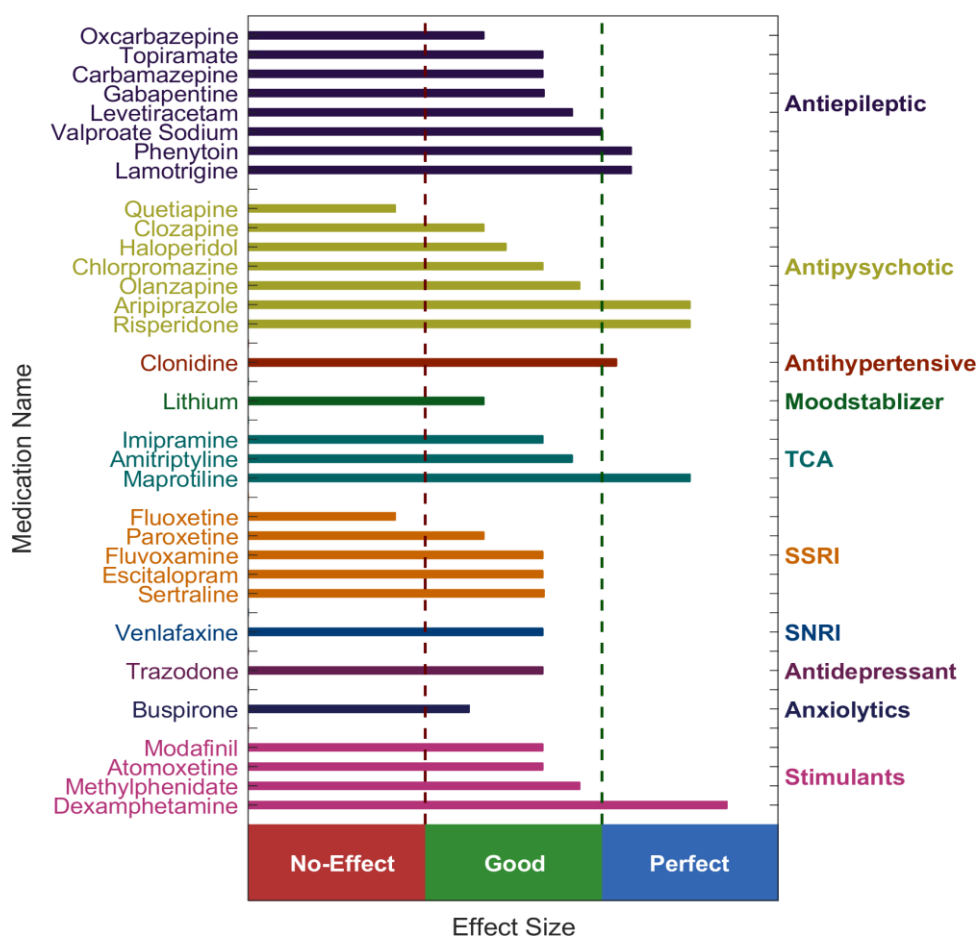


Comorbidity Percentage

Main Diagnosis Compatibility



## QEEG Based Predicting Medication Response



### Explanation

These two tables can be considered the most important finding that can be extracted from QEEG. To prepare this list, the NPCIndex Article Review Team has studied, categorized, and extracted algorithms from many authoritative published articles on predict medication response and Pharmacoe EEG studies. These articles are published between 1970 and 2021. The findings extracted from this set include 85 different factors in the raw band domains, spectrum, power, coherence, and loreta that have not been segregated to avoid complexity, and their results are shown in these diagrams. One can review details in NPCIndex.com .

### Medication Recommendation

These two charts, calculate response probability to various medications, according only to QEEG indicators. Blue charts favor drug response and red charts favor drug resistance. The longer the bar, the more evidence there is in the articles. Only drugs listed in the articles are listed. These tables present the indicators reviewed in the QEEG studies and are not a substitute for physician selection.

## rTMS Response Prediction

### Network Performance

Accuracy: 92.10%  
Sensitivity: 89.13%  
Specificity: 97.47%

### Participants Information

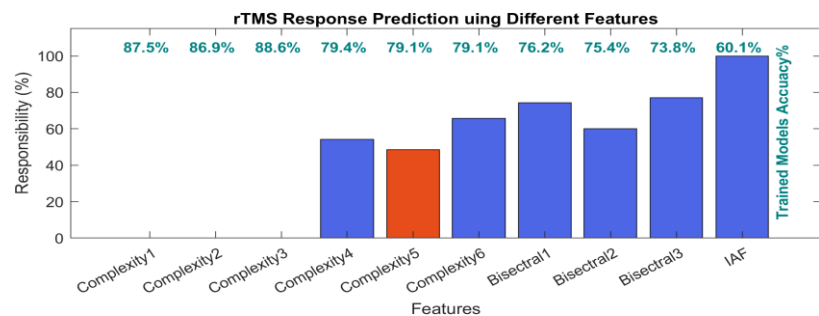
Distribution of Gender



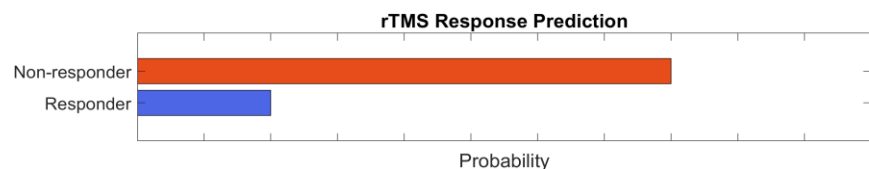
Distribution of Age



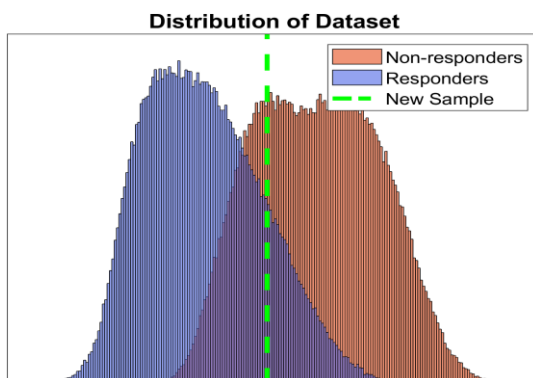
### Features Information



### Responsibility



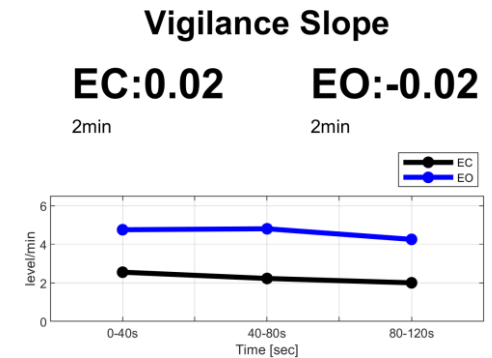
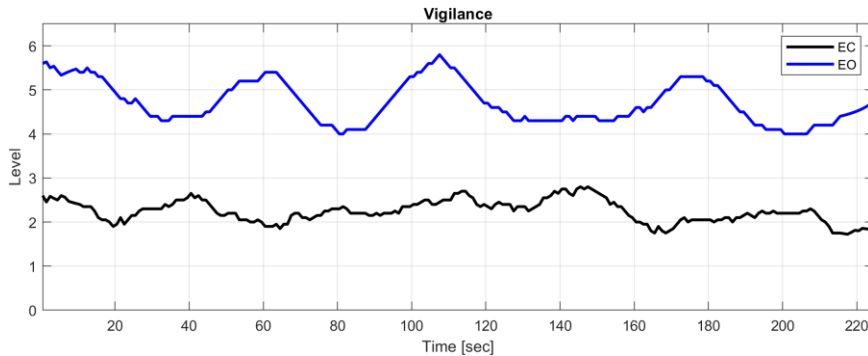
### Data Distribution



### About Predicting rTMS Response

This index was obtained based on machine learning approaches and by examining the QEEG biomarkers of more than 470 cases treated with rTMS. The cases were diagnosed with depression (with and without comorbidity) and all were medication free. By examining more than 40 biomarkers capable of predicting response to rTMS treatment in previous studies and with data analysis, finally 10 biomarkers including bispectral and nonlinear features entered the machine learning process. The final chart can distinguish between RTMS responsive and resistant cases with 92.1% accuracy. This difference rate is much higher than the average response to treatment of 44%, in the selection of patients with clinical criteria, and is an important finding in the direction of personalized treatment for rTMS.

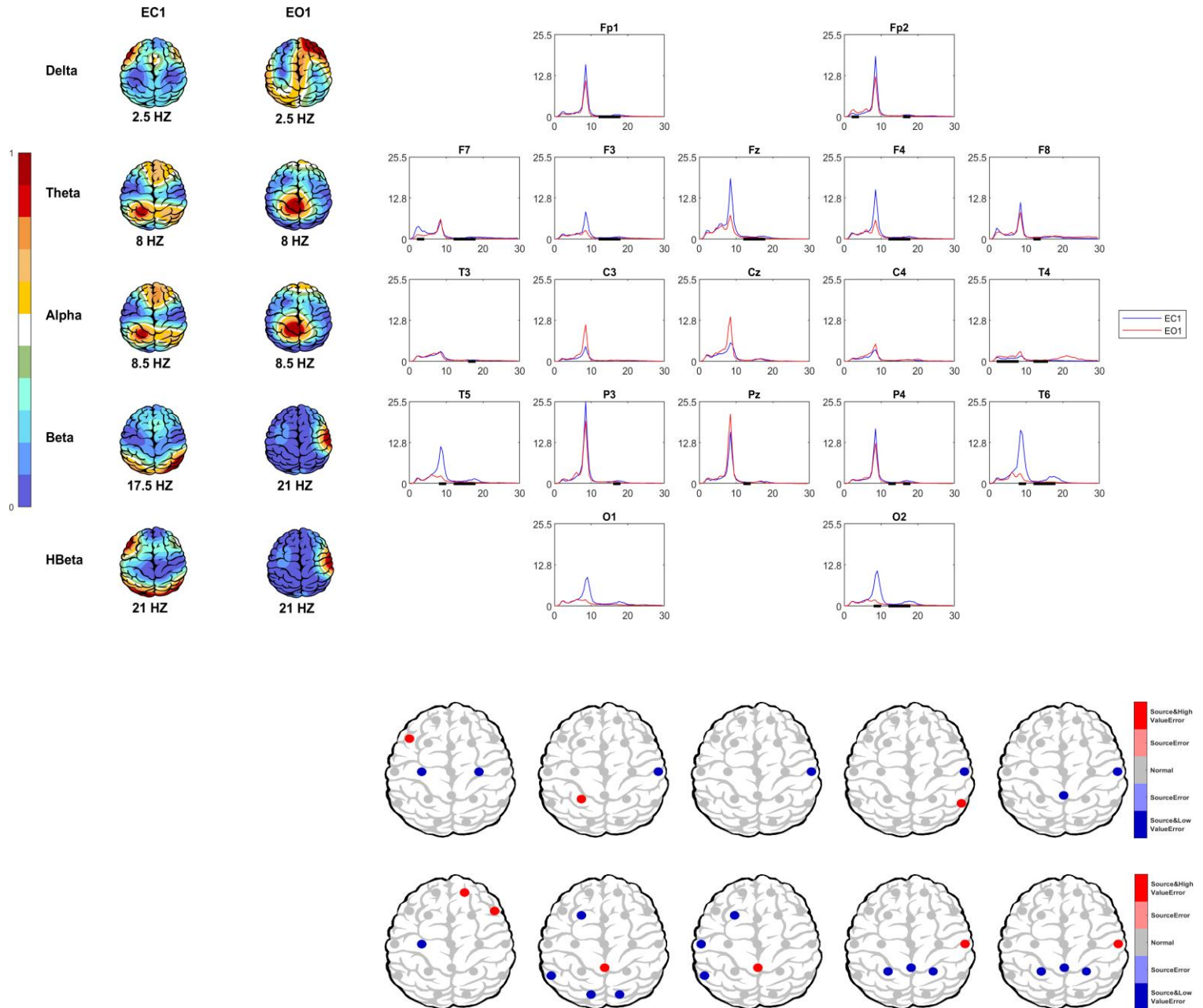
## Vigilance



## EEG Neuromarker Values

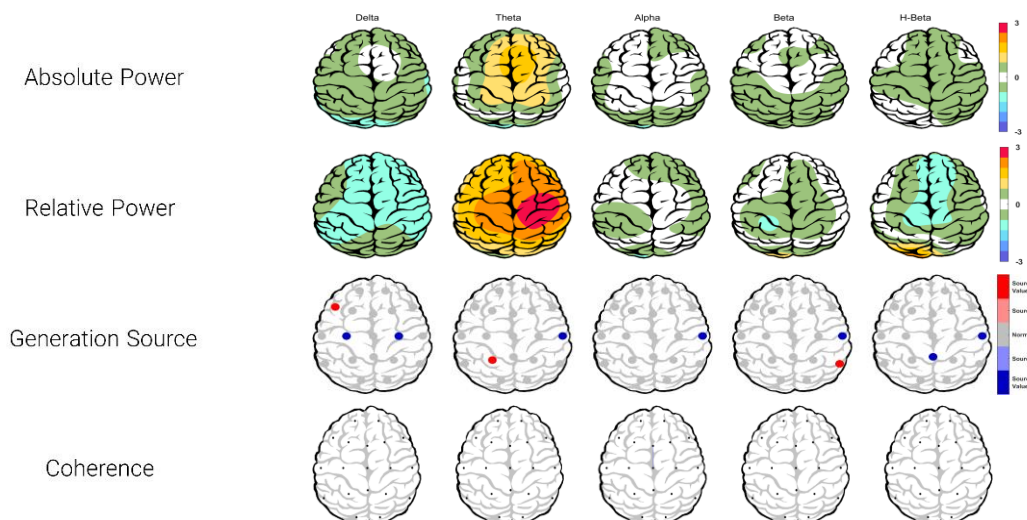
| Neuromarker                 | Region    | Value | Assessment |
|-----------------------------|-----------|-------|------------|
| APF - EO                    | Frontal   | 08.75 | Low        |
| AFP - EC                    | Frontal   | 08.75 | Low        |
| APF - EO                    | Occipital | 08.75 | Low        |
| AFP - EC                    | Occipital | 09.00 | Low        |
| Alpha Asymmetry - EO        | Frontal   | -0.26 | Anhedonia  |
| Alpha Asymmetry - EC        | Frontal   | -0.25 | Anhedonia  |
| Alpha Asymmetry - EO        | Occipital | 00.05 | Anxiety    |
| Alpha Asymmetry - EC        | Occipital | -0.10 | Anhedonia  |
| Beta Asymmetry - EO         | Frontal   | -0.00 | Anxiety    |
| Beta Asymmetry - EC         | Frontal   | -0.01 | Anxiety    |
| Alpha Blocking              | Pz        | -     | Observed   |
| Arousal Level - EO          | -         | -     | Low        |
| Arousal Level - EC          | -         | -     | Low        |
| Vigilance Level - EO        | -         | 04.00 | Normal     |
| Vigilance Level - EC        | -         | 02.00 | Low        |
| Vigilance Mean - EO         | -         | 04.71 | Normal     |
| Vigilance Mean - EC         | -         | 02.24 | Normal     |
| Vigilance Regulation - EO   | -         | -0.02 | Normal     |
| Vigilance Regulation - EC   | -         | 00.02 | Normal     |
| Vigilance 0 Stage (%) - EO  | -         | 35.56 | Normal     |
| Vigilance 0 Stage (%) - EC  | -         | 00.00 | Normal     |
| Vigilance A1 Stage (%) - EO | -         | 00.00 | -          |
| Vigilance A1 Stage (%) - EC | -         | 00.89 | -          |

## EEG Spectra

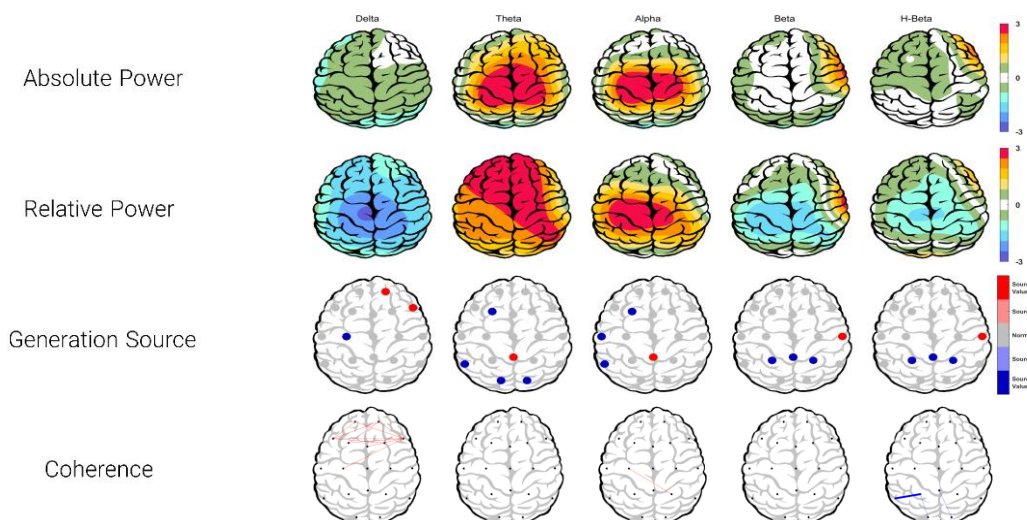


## Z Score Summary Information

### Eye Close

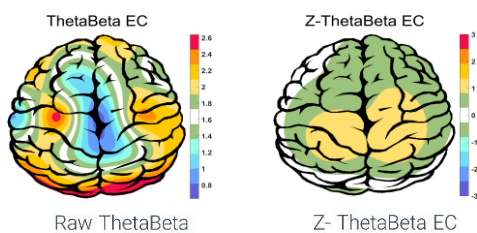


### Eye Open

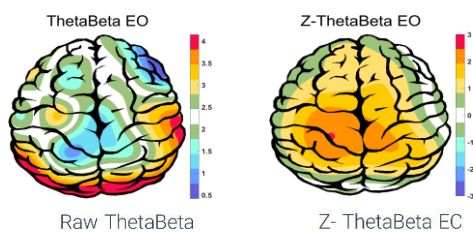


## Theta/Beta Ratio

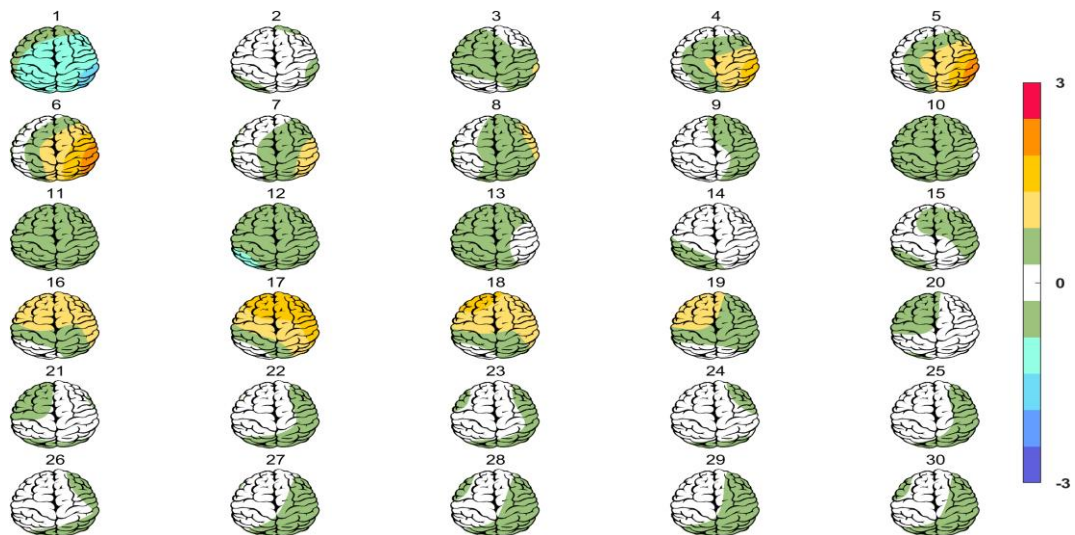
### Eye Close



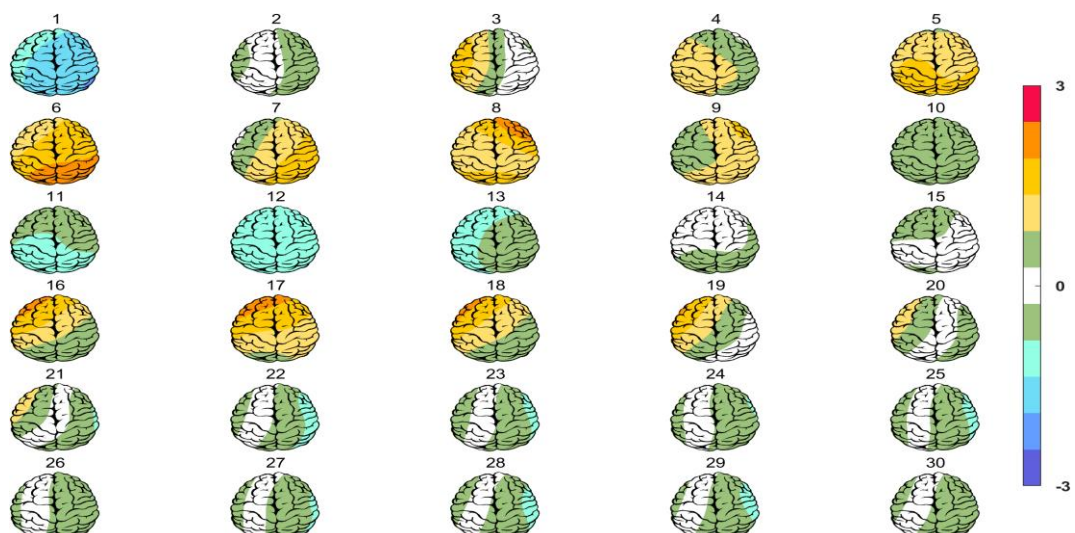
### Eye Open



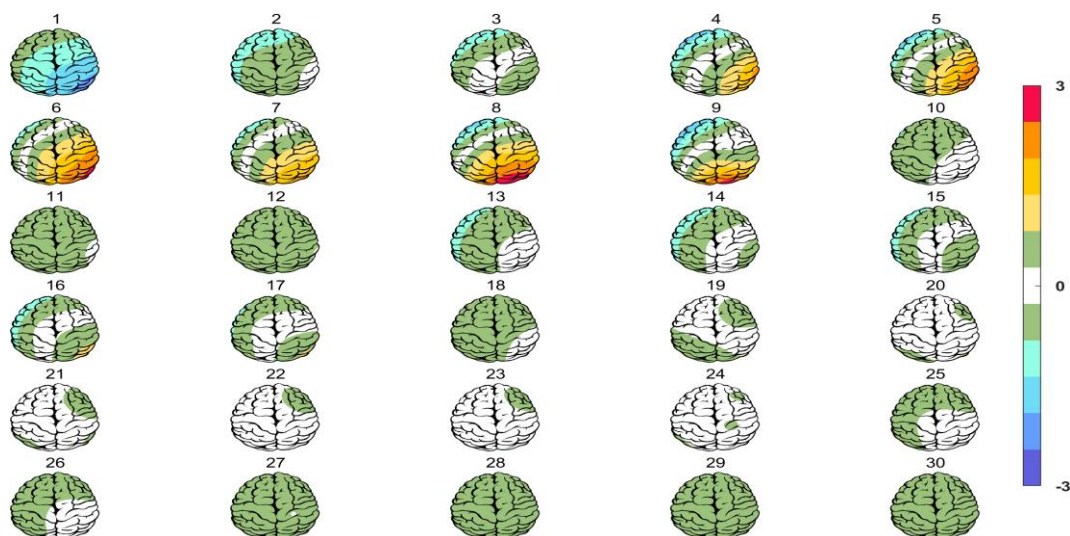
## Absolute Power-Eye Close



## Relative Power-Eye Close



## Absolute Power-Eye Open



## Relative Power-Eye Open

