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# EEG Algorithm Descriptions

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# INTRODUCTION

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NeuroSky offers a variety of EEG algorithms that work with **TGAM** - NeuroSky's brainwave sensor ASIC module. Such EEG algorithms perform signal processing and machine learning so as to decode user mental state from brainwave in realtime. These algorithms can be adapted to run on different platforms relatively easily, from embedded systems, mobile devices, and computers. For the availability of an algorithm SDK for a specific platform, such as embedded, iOS, android, PC or Mac, please contact your regional FAE or Sales Representative.

In this document we provide background information about each of the algorithms – what they measure, why they can be useful, and how they should be used.

# AVAILABLE ALGORITHMS

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## Attention (Att)

Attention measures how focus or single minded you are at the moment. It indicates the intensity of mental "focus" or "attention" with algorithm value from **0-100** outputting **every second**. The more you focus, the higher the algorithm output value.

Tips for driving attention: - Stare at an external object and focus.

## Meditation (Med)

Meditation measures how calm and clear-minded you are at the moment. It indicates the level of mental "calmness" or "relaxation" with algorithm value from **0-100** outputting **every second**. The more your mind relax, the higher the algorithm output value.

Tips for driving meditation: - Close your eyes, relax and empty your mind, deep breathes and slowly exhale.

## BandPower (BP)

BandPower measures the power spectrum density of five frequency bands. They are Delta Band: <4 Hz, Theta Band: 4-8 Hz, Alpha Band: 8-13 Hz, Beta Band: 13-30 Hz and Gamma Band: >30 Hz. Outputs are 5 band power values in "**dB**" outputting **every second**.

## Eye Blink Detection (Blink)

Detect the eye blink action. It indicates the strength of the eye blink (always > 0). The stronger the eye blink, the larger the eye blink strength value.