EMOTIV SDK

RESEARCH EDITION SPECIFICATIONS
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Research Edition Overview

**Emotiv SDK Research Edition**
The Emotiv SDK Research Edition is a single user license for companies/educations that are creating proprietary applications and/or are also developing new applications/detections using raw EEG data from the Emotiv EPOC.

The Emotiv SDK includes a high resolution, neuro-signal acquisition and processing wireless neuroheadset, TestBench, and our proprietary software toolkit that exposes our APIs and detection libraries.

**Affectiv™ Suite**
The Affectiv suite monitors the user’s emotional states in real-time. It provides an extra dimension in game interaction by allowing the computer to respond to a user’s emotions. In a game, characters can transform in response to the player’s feeling. Music, scene lighting and effects can be tailored to heighten the experience for the user in real-time. The Affectiv suite can be used to monitor player state of mind and allow developers to adjust difficulty to suit each situation. Affectiv suite can be combined with other inputs such as eye tracking devices to provide real-time feedback from the entire user experience for neuromarketing applications. Adaptive interfaces can monitor user engagement, boredom, excitement, frustration and meditation level in real time.

**Cognitiv™ Suite**
The Cognitiv suite reads and interprets a user’s conscious thoughts and intent. Users can manipulate virtual or real objects using only the power of their thought! For the first time, the fantasy of magic and supernatural power can be experienced.

**Expressiv™ Suite**
The Expressiv suite uses the signals measured by the neuroheadset to interpret player facial expressions in real-time. It provides a natural enhancement to game interaction by allowing game characters to come to life. When a user smiles, their avatar can mimic the expression even before they are aware of their own feelings. Artificial intelligence can now respond to players naturally, in ways only humans have been able to until now.
# SDK Headset

<table>
<thead>
<tr>
<th>SDK HEADSET</th>
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<tbody>
<tr>
<td>Number of channels</td>
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<td>Channel names (International 10-20 locations)</td>
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<td>Sampling method</td>
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<td>Sampling rate</td>
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<td>Coupling mode</td>
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<td>Power</td>
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<tr>
<td>Battery life (typical)</td>
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**EMC and Telecom:** Class B  
ETSI EN 300 440-2 V1.4.1  
EN 301 489-1  
EN 301 489-3  
AS/NZS CISPR22 :2009  
AS/NZS 4268 :2008  
FCC CFR 47 Part 15C (identifiers XUE-EPOC01, XUE-USBD01)

**Safety:**  
EN 60950-1:2006  
IEC 60950-1:2005 (2nd Edition)  
AS/NZS 60950.1:2003 including amendments 1, 2 & 3  
CB Certificate JPTUV-029914 (TUV Rheinland)
Real-time display of the Emotiv headset data stream, including EEG, contact quality, FFT, gyro (if fitted – custom option), wireless packet acquisition/loss display, marker events, headset battery level.

Record and replay files in binary EEGLAB format. Command line file converter included to produce .csv format.

Define and insert timed markers into the data stream, including on-screen buttons and defined serial port events. Markers are stored in EEG data file.

Marker definitions can be saved and reloaded. Markers are displayed in real time and playback modes.

Export screenshot for documentation.
Features

EEG display:

- 5 second rolling time window (chart recorder mode)
- ALL or selected channels can be displayed
- Automatic or manual scaling (individual channel display mode)
- Adjustable channel offset (multi-channel display mode)
- Synchronized marker window
Features

FFT display:

- Selected channel only
- ALL or selected channels can be displayed
- Adjustable sampling window size (in samples)
- Adjustable update rate (in samples)
- dB mode – power or amplitude calculations
- dB scale
- FFT window methods: Hanning, Hamming, Hann, Blackman, Rectangle
- Predefined and custom sub-band histogram display – Delta, Theta, Alpha, Beta, custom bands
TestBench™

Features

Gyro display: (NOTE: custom option – gyros not fitted to consumer headset)

5 second rolling time window (chart recorder mode)

X and Y deflection

Data Packet display:

5 second rolling graph of Packet Counter output

Packet loss – integrated count of missing data packets

Verify data integrity for wireless transmission link
TestBench™

Features

Data Recording and Playback:

Fully adjustable slider, play/pause/exit controls.

Subject and record ID, date, start time recorded in file naming convention.

The example below references file “Geoff-test1-22.05.09.18.10.27.edf”