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(71) Applicant (for all designated States except US): **IMPERIAL COLLEGE INNOVATIONS LIMITED** [GB/GB]; Electrical & Electronic Engineering Bldg, Level 12, Imperial College, Exhibition Road, London, SW7 2AZ (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **RODRIGUEZ VILLEGAS, Esther Olivia** [ES/GB]; 80 Queensway, London, W2 3RL (GB). **YATES, David Christopher** [GB/GB]; 37 Cliffe Drive, Whittle-le-Woods, Chorley, Lancashire, PR6 7HT (GB).

(74) Agents: **ROBERTS, Gwilym Vaughan . et al.**; Kilburn & Strode, 20 Red Lion Street, London, WC1R 4PJ, United Kingdom (GB).

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(54) Title: APPARATUS AND METHOD FOR OBTAINING EEG DATA

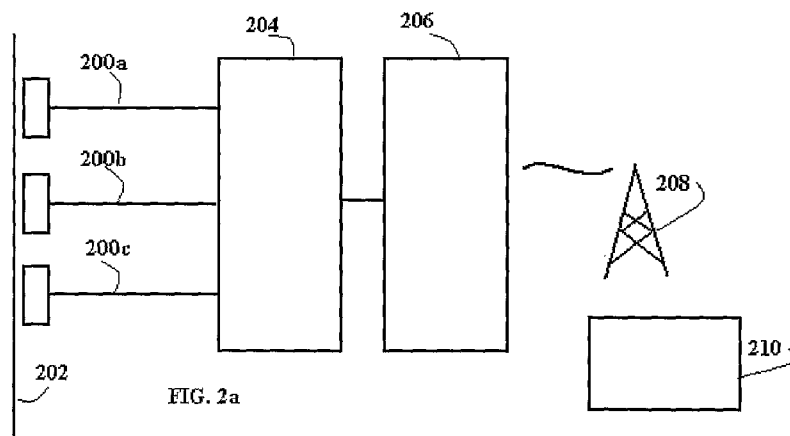


FIG. 2a

(57) Abstract: An apparatus for obtaining EEG data comprises a signal processing component for receiving EEG signals from each of a plurality of electrodes, and a data output component. The signal processing component is arranged to convert respective EEG signals in real time to a reduced data set and provide the reduced data set to a data output component.

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# INTERNATIONAL SEARCH REPORT

International application No  
PCT/GB2007/002953

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. A61B5/0476 H03F3/217

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

A61B H03F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>TIONG LIM ET AL: "A low-power and low-offset CMOS front-end amplifier for portable EEG acquisition system" BIOMEDICAL CIRCUITS AND SYSTEMS, 2004 IEEE INTERNATIONAL WORKSHOP ON SINGAPORE 1-3 DEC. 2004, PISCATAWAY, NJ, USA, IEEE, 1 December 2004 (2004-12-01), pages 17-20, XP010809978 ISBN: 0-7803-8665-5</p>	1-6, 8, 31
A	<p>page S1.1-17, section 'Introduction' abstract page 248, column 1, paragraph 1; figure 2 page 249, column 2, paragraphs 1,2 ----- -/--</p>	7

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

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- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

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Name and mailing address of the ISA  
European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Knüpling, Moritz

## INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2007/002953

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MORENO L ET AL: "Towards a knowledge based system for the clinical evaluation of the electroencephalogram and visual evoked potentials" SYSTEMS, MAN, AND CYBERNETICS, 1998. 1998 IEEE INTERNATIONAL CONFERENCE ON SAN DIEGO, CA, USA 11-14 OCT. 1998, NEW YORK, NY, USA, IEEE, US, vol. 4, 11 October 1998 (1998-10-11), pages 4069-4074, XP010310866 ISBN: 0-7803-4778-1	1,9-15, 31
A	page 4069, column 2, paragraph 4 page 4070, section 'EEG signal compression'	33
X	GIULIANO ANTONIOL ET AL: "EEG Data Compression Techniques" IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING, IEEE SERVICE CENTER, PISCATAWAY, NJ, US, vol. 44, no. 2, February 1997 (1997-02), XP011006332 ISSN: 0018-9294 abstract page 105	1,15, 30-32
A	page 109, section 'V. Exploiting EEG Peculiarities', first paragraph	16-29
X	GOPIKRISHNA D ET AL: "A high performance scheme for EEG compression using a multichannel model" HIGH PERFORMANCE COMPUTING - HIPC 2002. 9TH INTERNATIONAL CONFERENCE. PROCEEDINGS (LECTURE NOTES IN COMPUTER SCIENCE VOL.2552) SPRINGER-VERLAG BERLIN, GERMANY, 2002, pages 443-451, XP002477614 ISBN: 3-540-00303-7 abstract page 443, paragraphs 1,2	1,9,10, 15-19, 22,23,31
A	page 445 - 446, section '2 Compression Method'	11-14, 20,21,32
A	FERNANDA I M ARGOUD ET AL: "SADE3: an effective system for automated detection of epileptiform events in long-term EEG based on context information" MEDICAL & BIOLOGICAL ENGINEERING & COMPUTING, SPRINGER-VERLAG, BE, vol. 44, no. 6, 4 May 2006 (2006-05-04), pages 459-470, XP019415042 ISSN: 1741-0444 page 462 abstract	1,9-15

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB2007/002953

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: 33, 37  
because they relate to subject matter not required to be searched by this Authority, namely:  
**Rule 39.1(iv) PCT - Diagnostic method practised on the human or animal body**
  
2.  Claims Nos.: 37  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
**see FURTHER INFORMATION sheet PCT/ISA/210**
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

**see additional sheet**

1.  As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-32

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

Continuation of Box II.1

Claims Nos.: 33,37

Rule 39.1(iv) PCT - Diagnostic method practised on the human or animal body

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Continuation of Box II.2

Claims Nos.: 37

Claim 37 refers to the drawings which is unclear with regard to the intended limitation of the claimed subject-matter. Further, claims making reference to the drawings are not allowed under the PCT (Rule 6.2(a))

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.2), should the problems which led to the Article 17(2)PCT declaration be overcome.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-32

Apparatus for converting EEG data to reduced data set  
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2. claims: 34-36

Analogue chopper amplifier  
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