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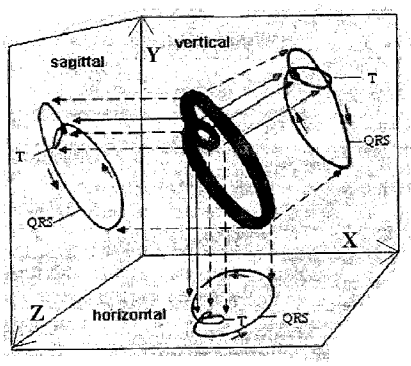
(54) **Title:** A SYSTEM AND A METHOD FOR DIMENSIONALITY REDUCTION OF ECG SIGNALS FOR ECG ANALYSIS AND PRESENTATION



(57) **Abstract:** The present invention relates to a system and a method for deriving a high level of information from an Electrocardiogram (ECG) and the use of this method and system. The purpose of the invention is to obtain at least one synthesized lead to give a better representation of any ECG segment than provided by any single physically obtained or derived lead. A further purpose of the invention is to find the one vector-projection for each obtaining of all possible vector-projections containing the largest possible amount of information about the ST-T segment. This can be achieved if the plurality of signals obtained from the body are mathematically expressed into calculation means as multi-dimensional ECG representations where the system performs a transformation of the multi-dimensional signals in relation to an optimal orientation of at least one projection vector regarding relevant information of a predefined segment of the signal into at least one synthesized ECG representation. The derived ECG representation can be used for diagnosis of congenital Long QT Syndrome or in drug testing for acquired Long QT Syndrome.

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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A61B

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	NG J ET AL: "Surface ECG vector characteristics of organized and disorganized atrial activity during atrial fibrillation" JOURNAL OF ELECTROCARDIOLOGY, XX, XX, vol. 37, 1 October 2004 (2004-10-01), pages 91-97, XP004623097 ISSN: 0022-0736 page 92, left-hand column, line 15 - page 94, left-hand column, line 4 figures 1-3	1,2,4-6, 9-12,14, 18,19

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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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	Chen, Amy

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	EDENBRANDT L ET AL: "VECTORCARDIOGRAM SYNTHESIZED FROM A 12-LEAD ECG: SUPERIORITY OT THEINVERSE DOWER MATRIX" JOURNAL OF ELECTROCARDIOLOGY, vol. 21, no. 4, 1 January 1988 (1988-01-01), pages 361-367, XP000565976 US ISSN: 0022-0736 page 361, left-hand column, line 1 - page 364, left-hand column, line 6 figures 1,2	1,2,4, 10-15,19

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	STEPHEN A DYER ET AL: "Vectorcardiographic Data Compression via Walsh And Cosine Transforms" IEEE TRANSACTIONS ON ELECTROMAGNETIC COMPATIBILITY, IEEE SERVICE CENTER, NEW YORK, NY, US, vol. EMC-10, no. 1, 1 February 1985 (1985-02-01), pages 24-34, XP011165193 ISSN: 0018-9375 page 24, left-hand column, line 1 - page 28, right-hand column, line 22 page 31, left-hand column, line 4 - right-hand column, line 55	1,2,4, 10-15,19
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International application No
PCT/DK2007/000526

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	ANDERSEN ET AL: "Repeatability of T-wave morphology measurements: superiority of a principal component analysis-based lead" JOURNAL OF ELECTROCARDIOLOGY, XX, XX, vol. 40, no. 6, 1 November 2007 (2007-11-01), page S81, XP022330712 ISSN: 0022-0736 the whole document	1,2,7, 10,12, 14,16, 19,20

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Information on patent family members

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		JP 2008504073 T	14-02-2008
		WO 2006002398 A1	05-01-2006