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(30) Priority: **22.07.1999 US 357559**

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(54) **Vector mapping of three-dimensionally reconstructed intrabody organs and method of display**

(57) A method of diagnosing an abnormal condition in a biological structure, such as the heart, including the steps of measuring a physiological response at at least three sampled points on a surface of the biological structure, calculating a vector function related to the response, displaying a representation of the vector function, and inferring the abnormal condition from the representation. The present invention is particularly useful for diagnosing cardiac arrhythmias, in which case the physiological response is a voltage, from which is inferred a local activation time and the vector function is a gradient of the local activation time, specifically, a conduction velocity.

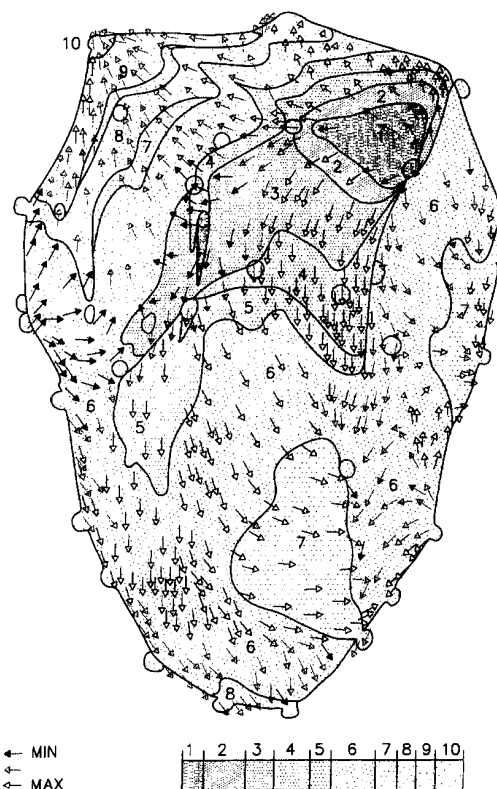


FIG. 11



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PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention EP 00 30 6218 shall be considered, for the purposes of subsequent proceedings, as the European search report

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	WO 97 24981 A (BIOSENSE ISRAEL LTD ;FENSTER MAIER (IL); BEN HAIM SHLOMO (IL)) 17 July 1997 (1997-07-17) * page 12, line 1 - page 13, line 29 * * page 18, line 12 - page 19, line 24 * * page 26, line 19 - page 28, line 25 * * page 32, line 29 - page 34, line 16 * * page 33, line 16-27; figures 6,7 * ---		A61B5/02 A61B5/042
A	US 5 687 737 A (COX JAMES L ET AL) 18 November 1997 (1997-11-18) * column 3, line 64 - column 4, line 13 * * column 6, line 28-42; figure 8 * * column 9, line 16-31 * * column 26, line 8 - column 28, line 19 * ---		
A	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 10, 31 August 1999 (1999-08-31) -& JP 11 128191 A (TOSHIBA CORP), 18 May 1999 (1999-05-18) * paragraphs [0003],[0004],[0014]-[0019] * * abstract * --- -/--		TECHNICAL FIELDS SEARCHED (Int.Cl.7) A61B G06F G06T G01P
INCOMPLETE SEARCH			
The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims. Claims searched completely : Claims searched incompletely : Claims not searched : Reason for the limitation of the search: see sheet C			
Place of search		Date of completion of the search	Examiner
BERLIN		3 December 2002	Pohjamo, T
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C07)



European Patent
Office

**INCOMPLETE SEARCH
SHEET C**

Application Number

EP 00 30 6218

Claim(s) not searched:
1-16

Reason for the limitation of the search (non-patentable invention(s)):

Article 52 (4) EPC - Method for treatment of the human or animal body by surgery.

Although claims 1-16 are directed to a method of surgery (by means of an invasive catheter 20) practised on the human or animal body, the search has been carried out and based on corresponding apparatus features.



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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	WO 99 05962 A (UNIV CASE WESTERN RESERVE ; RUDY YORAM (US)) 11 February 1999 (1999-02-11) * abstract * -----		
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 30 6218

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

03-12-2002

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	三维重建体内器官的矢量映射及显示方法		
公开(公告)号	EP1070480A3	公开(公告)日	2003-01-22
申请号	EP2000306218	申请日	2000-07-21
[标]申请(专利权)人(译)	生物感觉有限公司		
申请(专利权)人(译)	生物传感, INC.		
当前申请(专利权)人(译)	生物传感韦伯斯特, INC.		
[标]发明人	REISFELD DANIEL		
发明人	REISFELD, DANIEL		
IPC分类号	A61B5/00 A61B5/01 A61B5/02 A61B5/04 A61B5/0402 A61B5/0408 A61B5/042 A61B5/044 A61B5/05 A61B5/06 A61B5/107 G06T1/00 G06T17/20		
CPC分类号	G06T17/20 A61B5/04011 A61B5/04085 A61B5/0422 A61B5/743		
代理机构(译)	MERCER, CHRISTOPHER PAUL		
优先权	09/357559 1999-07-22 US		
其他公开文献	EP1070480A2 EP1070480B1		
外部链接	Espacenet		

摘要(译)

一种诊断生物结构(例如心脏)中的异常状况的方法,包括测量生物结构表面上的至少三个采样点处的生理反应的步骤,计算与响应相关的矢量函数,显示矢量函数的表示,并从表示中推断出异常情况。本发明特别适用于诊断心律失常,在这种情况下,生理反应是电压,从该电压推断出局部激活时间,矢量函数是局部激活时间的梯度,具体地,是传导速度。

