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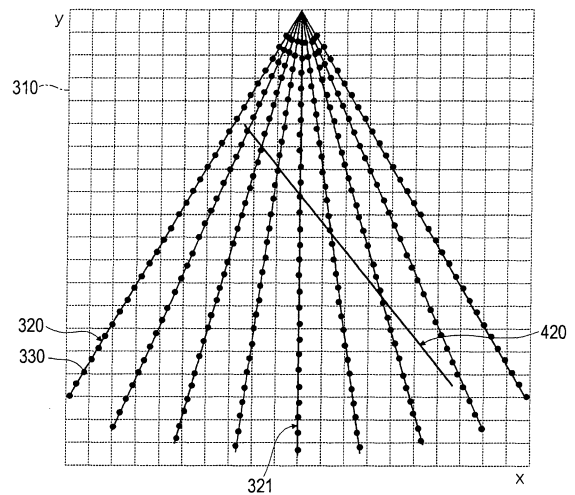
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(54) **Ultrasound diagnostic system and method of forming arbitrary m-mode images**

(57) The present application relates to an ultrasound diagnostic system and a method of forming arbitrary M-mode ultrasound images. The ultrasound diagnostic system (100) includes: a probe (110) for transmitting ultrasound signals toward a desired part of a target object and receiving the ultrasound signals reflected from the desired part; a scan converter (150) for converting an ultrasound image data into a B-mode image data, the ultrasound image data being obtained based on the ultrasound signal received from the probe; an input unit (180) for receiving an arbitrary M-mode scan line set by a user; an arbitrary M-mode processor (171) for generating an arbitrary M-mode image data corresponding to the arbitrary M-mode scan line; and a display unit (190) for displaying at least one of the B-mode image data, the M-mode image data and the arbitrary M-mode scan line. In accordance with the present application, the biological information of the target object can be observed and diagnosed from an arbitrary direction and path, regardless of the direction of the ultrasound signals. Additionally, the arbitrary M-mode image, which is more similar to the real image, can be provided for the user by generating the arbitrary M-mode images corresponding to the arbitrary M-mode scan line by using ultrasound image data before scan-conversion.

Fig. 4B



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PARTIAL EUROPEAN SEARCH REPORT

Application Number

under Rule 62a and/or 63 of the European Patent Convention.
This report shall be considered, for the purposes of subsequent proceedings, as the European search report

EP 05 02 2972

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 8 038470 A (HITACHI MEDICAL CORP) 13 February 1996 (1996-02-13) * paragraphs [0005], [0011], [0029] - [0044], [0049], [0050]; figures 1,4 *	1,2,5-8	INV. A61B8/14
X	US 2004/111028 A1 (ABE YASUHIKO [JP] ET AL) 10 June 2004 (2004-06-10) * paragraphs [0115] - [0118]; figures 1-3,12 *	1,2,5-8	
X	US 5 568 812 A (MURASHITA MASARU [JP] ET AL) 29 October 1996 (1996-10-29) * abstract * * column 6, paragraph 5 - column 8, paragraph 2 *	1,2,5-8	
X	JP 2002 263105 A (HITACHI MEDICAL CORP) 17 September 2002 (2002-09-17) * paragraphs [0011] - [0015], [0020] - [0024]; figures 1,2 *	1,2,5-8	
			TECHNICAL FIELDS SEARCHED (IPC)
			A61B
INCOMPLETE SEARCH			
The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.			
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		1 March 2011	Clevorn, Jens
CATEGORY OF CITED DOCUMENTS		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	
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			

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EPO FORM 1503 03.82 (PC/E07)



PARTIAL EUROPEAN SEARCH REPORT

Application Number
EP 05 02 2972

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	US 5 515 856 A (OLSTAD BJORN [NO] ET AL) 14 May 1996 (1996-05-14) * abstract * * column 3, last paragraph - column 4, paragraph 2 * * column 5, paragraph 4 - column 6, paragraph 1 * -----	1,2,5-8	
			TECHNICAL FIELDS SEARCHED (IPC)



**INCOMPLETE SEARCH
SHEET C**

Application Number
EP 05 02 2972

Claim(s) completely searchable:
1, 2, 5-8

Claim(s) not searched:
3, 4

Reason for the limitation of the search:

The search has been restricted to the subject-matter indicated by the applicant in his letter of 21.06.2010 filed in reply to the invitation pursuant to Rule 62a(1) EPC.

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

EP 05 02 2972

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.

01-03-2011

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EPO FORM P0459

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

专利名称(译)	超声诊断系统和形成任意M模式图像的方法		
公开(公告)号	EP1679038A3	公开(公告)日	2011-04-13
申请号	EP2005022972	申请日	2005-10-21
申请(专利权)人(译)	MEDISON CO. , LTD.		
当前申请(专利权)人(译)	MEDISON CO. , LTD.		
[标]发明人	KIM JEONG HWAN		
发明人	KIM, JEONG HWAN		
IPC分类号	A61B8/14		
CPC分类号	A61B8/486 A61B8/14 A61B8/463		
代理机构(译)	LORENZ , WERNER		
优先权	1020050000709 2005-01-05 KR		
其他公开文献	EP1679038A2		
外部链接	Espacenet		

摘要(译)

本申请涉及超声诊断系统和形成任意M模式超声图像的方法。超声诊断系统 (100) 包括：探头 (110) ，用于向目标对象的期望部分发送超声信号，并接收从期望部分反射的超声信号；扫描转换器 (150) ，用于将超声图像数据转换为B模式图像数据，所述超声图像数据是基于从探针接收的超声信号获得的；输入单元 (180) ，用于接收用户设置的任意M模式扫描线；任意M模式处理器 (171) ，用于产生对应于任意M模式扫描线的任意M模式图像数据；显示单元 (190) ，用于显示B模式图像数据，M模式图像数据和任意M模式扫描线中的至少一个。根据本申请，无论超声信号的方向如何，都可以从任意方向和路径观察和诊断目标对象的生物信息。另外，通过在扫描转换之前使用超声图像数据生成与任意M模式扫描线对应的任意M模式图像，可以为用户提供与实际图像更相似的任意M模式图像。。

Fig. 4B

