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(71) Applicant: **Samsung Medison Co., Ltd. Hongcheon-gun, Gangwon-do, 25108 (KR)**

(72) Inventor: **HAH, Zae Gyoo Seoul (KR)**

(74) Representative: **Jacobs, Bart et al Arnold & Siedsma Bezuidenhoutseweg 57 2594 AC The Hague (NL)**

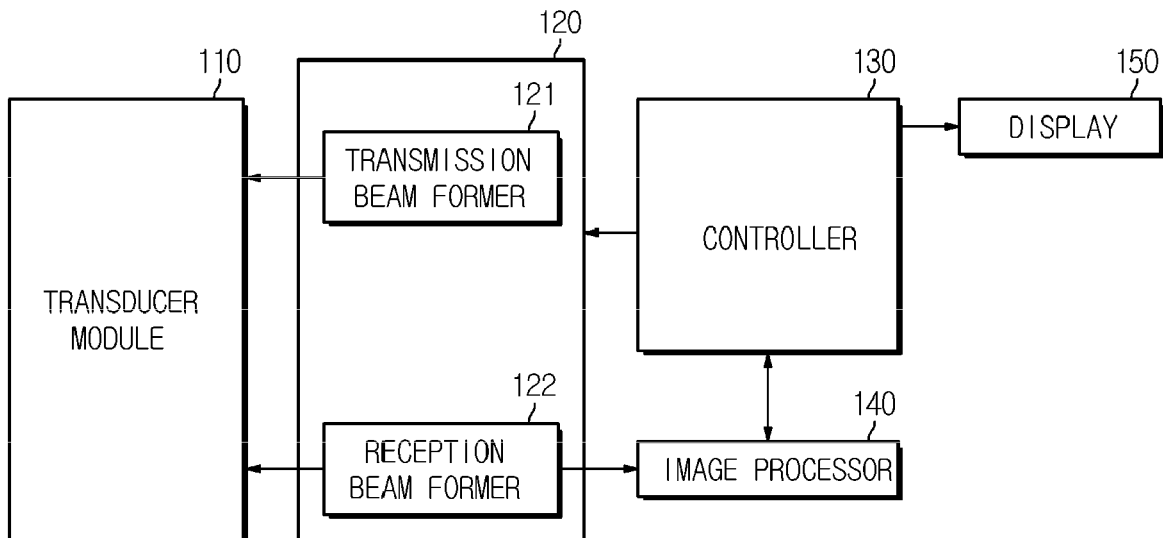
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(54) **ULTRASOUND IMAGING APPARATUS AND CONTROL METHOD THEREOF**

(57) An ultrasound imaging apparatus according to an embodiment comprises an ultrasonic probe to acquire an ultrasonic signal of a target object, a display, and a controller to acquire viscoelasticity data of the target object based on the acquired ultrasonic signal, determine

at least one parameter for displaying the acquired viscoelasticity data, determine a parameter space for displaying the at least one parameter, and control the display to display the determined parameter in the determined parameter space.

FIG. 2



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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

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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	US 2016/302769 A1 (LABYED YASSIN [US] ET AL) 20 October 2016 (2016-10-20)	1-3,11	INV. A61B8/08
Y	* figures 1, 2, 4 *	5,13	
A	* paragraph [0003] - paragraph [0006] * * paragraph [0013] - paragraph [0037] * * paragraph [0048] - paragraph [0073] *	4,12	ADD. A61B8/00
X	WO 2011/033050 A1 (ECHOSENS [FR]; SANDRIN LAURENT [FR]; MIETTE VERONIQUE [FR]; SASSO MAGA) 24 March 2011 (2011-03-24)	1,2,11	
Y	* abstract; figures 1-3 *	5,13	
A	* page 2, line 1 - page 17, line 13 *	3,4,12	
Y	EP 1 980 210 A1 (HITACHI MEDICAL CORP [JP]) 15 October 2008 (2008-10-15)	5,13	
A	* abstract; figures 9-12 * * paragraph [0062] - paragraph [0078] *	1-4,11, 12	
A	EP 1 864 612 A1 (HITACHI MEDICAL CORP [JP]) 12 December 2007 (2007-12-12) * abstract; figures 4, 6-15 * * paragraph [0020] - paragraph [0050] *	1-5, 11-13	
	----- -/--		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 Munich		Date of completion of the search 6 March 2019	Examiner Lorenz, Larissa
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 (P04E07)



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Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	<p>KAZUTOKI KOGURE: "Trial of a quantitative method for evaluating hemangioma of the liver and hepatocellular carcinoma using a radio-frequency signal", JOURNAL OF MEDICAL ULTRASONICS, vol. 32, no. 4, 19 December 2005 (2005-12-19), pages 159-166, XP055565266, JP ISSN: 1346-4523, DOI: 10.1007/s10396-005-0059-6 * abstract; figures 1, 2, 5, 6 * * Section "Discussion" *</p> <p>-----</p>	1-5, 11-13	
A	<p>TADASHI YAMAGUCHI ET AL: "Estimation of the scatterer distribution of the cirrhotic liver using ultrasound image", JPN. J. APPL. PHYS., vol. 37, no. 1, No. 5B, 1 May 1998 (1998-05-01), pages 3093-3096, XP055565273, * abstract; figure 6; table I * * Sections "2. Scatterer Information on B-mode Image", "4. Results and Discussion" and "5. Conclusion" *</p> <p>-----</p>	1-5, 11-13	TECHNICAL FIELDS SEARCHED (IPC)

EPO FORM 1503 08.82 (P04C10) 2

INCOMPLETE SEARCH
SHEET CApplication Number
EP 18 19 3287

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Claim(s) completely searchable:
1-5, 11-13

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Claim(s) not searched:
6-10, 14, 15

Reason for the limitation of the search:

15

There are multiple independent claims in the same category:

- Independent product claims: 1, 6, 8
- Independent method claims: 11, 14, 15

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In the letter dated 15 February 2019, the applicant has indicated that the search is to be carried out on the basis of independent product claim 1 and independent method claim 11.

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

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5 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.

06-03-2019

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2016302769 A1	20-10-2016	CN 106037796 A	26-10-2016
		DE 102016106998 A1	20-10-2016
		FR 3034975 A1	21-10-2016
		KR 20160124019 A	26-10-2016
		US 2016302769 A1	20-10-2016

WO 2011033050 A1	24-03-2011	CN 102596051 A	18-07-2012
		EP 2477551 A1	25-07-2012
		ES 2618570 T3	21-06-2017
		FR 2949965 A1	18-03-2011
		JP 5635100 B2	03-12-2014
		JP 2013505040 A	14-02-2013
		PL 2477551 T3	30-06-2017
		PT 2477551 T	17-03-2017
		US 2012190983 A1	26-07-2012
		WO 2011033050 A1	24-03-2011

EP 1980210 A1	15-10-2008	CN 101370431 A	18-02-2009
		EP 1980210 A1	15-10-2008
		JP 4919972 B2	18-04-2012
		JP WO2007083745 A1	11-06-2009
		US 2010220901 A1	02-09-2010
WO 2007083745 A1	26-07-2007		

EP 1864612 A1	12-12-2007	CN 101150990 A	26-03-2008
		EP 1864612 A1	12-12-2007
		JP 5334413 B2	06-11-2013
		JP WO2006106852 A1	11-09-2008
		US 2009149750 A1	11-06-2009
WO 2006106852 A1	12-10-2006		

专利名称(译)	超声成像设备及其控制方法		
公开(公告)号	EP3453336A3	公开(公告)日	2019-04-24
申请号	EP2018193287	申请日	2018-09-07
[标]申请(专利权)人(译)	三星麦迪森株式会社		
申请(专利权)人(译)	三星MEDISON CO. , LTD.		
当前申请(专利权)人(译)	三星MEDISON CO. , LTD.		
发明人	HAH, ZAE GYOO		
IPC分类号	A61B8/08 A61B8/00		
CPC分类号	A61B8/085 A61B8/463 A61B8/485 A61B8/486 A61B8/488 G01S7/52022 G01S7/52042 G01S7/52063 G01S7/52071 G01S7/52073 G01S15/8915		
代理机构(译)	JACOBS , BART		
优先权	62/555907 2017-09-08 US 62/555934 2017-09-08 US 62/580890 2017-11-02 US 1020180042638 2018-04-12 KR		
其他公开文献	EP3453336A2		
外部链接	Espacenet		

摘要(译)

根据实施例的超声成像设备包括：超声探头，用于获取目标对象的超声信号；显示器；以及控制器，用于基于所获取的超声信号获取目标对象的粘弹性数据，确定用于显示的至少一个参数获取的粘弹性数据，确定用于显示至少一个参数的参数空间，并控制显示器以在所确定的参数空间中显示所确定的参数。

