



European Patent
Office

**SUPPLEMENTARY
PARTIAL EUROPEAN SEARCH REPORT**

Application Number

which under Rule 45 of the European Patent Convention EP 02 71 0465
shall be considered, for the purposes of subsequent
proceedings, as the European search report

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 5 879 303 A (AVERKIOU ET AL) 9 March 1999 (1999-03-09)	1-3,13, 14,16	A61B8/00 G01S7/52
Y	* abstract * * column 2, line 49 - column 5, line 19 * * column 6, line 53 - column 7, line 6; figures 1,5-8 *	18,19	
Y	-----	18,19	
A	EP 0 770 352 A (ADVANCED TECHNOLOGY LABORATORIES, INC) 2 May 1997 (1997-05-02)	3,4	
A	* column 6, line 7 - column 9, line 54 * * column 14, line 45 - column 15, line 5; figures 3-6 *		
X	-----	1-3,14, 18	
A	US 6 146 330 A (TUJINO ET AL) 14 November 2000 (2000-11-14)	16,19	
A	* abstract * * column 3, line 60 - column 5, line 11 * * column 9, line 48 - column 10, line 51; figures 1,14 *		
	-----	-/-	
			TECHNICAL FIELDS SEARCHED (IPC)
			A61B G01S

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

INCOMPLETE SEARCH

The Search Division considers that the present application, or some or all 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 the following claims:

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

2

Place of search Munich	Date of completion of the search 19 October 2005	Examiner Artikis, 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	



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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	
X	EP 0 952 463 A (GENERAL ELECTRIC COMPANY) 27 October 1999 (1999-10-27) * paragraph [0015] - paragraph [0031] * * paragraph [0047]; figure 1 * -----	1,2,13, 14,16	
			TECHNICAL FIELDS SEARCHED (IPC)



European Patent
Office

**INCOMPLETE SEARCH
SHEET C**

Application Number

EP 02 71 0465

Claim(s) not searched:

11-12,15,17,20-23,30-31

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 due to the use of injected contrast medium



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):

- No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

- None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-4, 13, 14, 16, 18, 19



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-4,13,14,16,18,19

An ultrasonic enhanced-contrast imager comprising a filter for extracting a specific frequency component from the response signal, a setting control section for setting the pass frequency band of said filter and a control section for controlling the operation of said filter in the set pass band.

2. claims: 5-10,24-29

Ultrasonic enhanced-contrast imagers comprising means for transmitting multiple beams at specific time intervals in the same direction, wherein each beam signal is constructed by connection of waveforms of different frequency and the transmitted signals are mutually asymmetrical with respect to polarity inversion. The claimed imagers have receiving sections with means for phase-processing the response signals and adding or subtracting the phase-processed response signals.

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

EP 02 71 0465

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.

19-10-2005

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 5879303	A	09-03-1999	NONE		
EP 0770352	A	02-05-1997	AT 285711 T	15-01-2005	
			DE 69634112 D1	03-02-2005	
			DE 69634112 T2	08-12-2005	
			ES 2235180 T3	01-07-2005	
			JP 9164138 A	24-06-1997	
US 6146330	A	14-11-2000	JP 11290318 A	26-10-1999	
EP 0952463	A	27-10-1999	JP 2000152939 A	06-06-2000	
			US 6102858 A	15-08-2000	

专利名称(译)	超声增强对比成像仪及其方法		
公开(公告)号	EP1358849A4	公开(公告)日	2006-04-05
申请号	EP2002710465	申请日	2002-02-01
[标]申请(专利权)人(译)	株式会社日立医药		
申请(专利权)人(译)	日立医疗器械股份有限公司		
当前申请(专利权)人(译)	日立医疗器械股份有限公司		
[标]发明人	KANDA HIROSHI HAYASHI TATSUYA MITAKE TSUYOSHI YOSHIDA MINORU		
发明人	KANDA, HIROSHI HAYASHI, TATSUYA MITAKE, TSUYOSHI YOSHIDA, MINORU		
IPC分类号	A61B8/00 G01S7/52		
CPC分类号	A61B8/481 A61B8/463 G01S7/52038 G01S15/8952		
优先权	2001025783 2001-02-01 JP 2001025778 2001-02-01 JP		
其他公开文献	EP1358849B1 EP1358849A1		
外部链接	Espacenet		

摘要(译)

考虑到来自造影剂的响应信号的频率分布在较宽的频率范围内，并且响应信号的强度大，因此，超声增强对比度成像器设置有用于提取特定图像的带通滤波器(34)。超声波辐射到包含造影剂的生物体组织时收到的响应信号中的频率分量。成像器还设有将带宽限制在1.2f0至1.8f0的范围内的装置，但是不像现有技术那样将其限制在二次谐波2f0上，还设有用于加/减响应的装置。

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE DOCUMENT (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant passages	
X	US 5 879 303 A (AVERKIOU ET AL) 9 March 1999 (1999-03-09) * abstract * * column 2, line 49 - column 5, line 19 * * column 6, line 53 - column 7, line 69; figures 1,5-8	1-3,13, 14,16 18,19	A61B8/00 G01S7/52
Y	EP 0 770 352 A (ADVANCED TECHNOLOGY LABORATORIES INC) 2 March 1997 (1997-03-02) * column 6, line 7 - column 9, line 54 * * column 6, line 45 - column 15, line 5; figures 3-6 *	18,19 3,4	
Y	US 6 146 330 A (TUJINO ET AL) 14 November 2000 (2000-11-14) * abstract * * column 9, line 60 - column 5, line 11 * * column 9, line 48 - column 10, line 51; figures 1,14 *	1-3,14, 18 16,19	
X	US 6 146 330 A (TUJINO ET AL) 14 November 2000 (2000-11-14) * abstract * * column 9, line 60 - column 5, line 11 * * column 9, line 48 - column 10, line 51; figures 1,14 *	----- ----/-/-	
The supplementary search report has been based on the last set of claims valid at the time of the search.			
INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or some or all of its claims, does/do not fully meet the requirements of patentability because the state of the art cannot be examined, or can only be carried out partially, for the following claims:</p> <p>Claims searched completely:</p> <p>Claims not searched:</p> <p>Reason for the limitation of the search: see sheet C</p>			
P	Place of search: Munich	Date of completion of the search: 19 October 2005	Examiner: Artikis, T
CATEGORY OF CITED DOCUMENTS		T: theory or principle underlying the invention E: earlier patent document, but published on, or after, the date of filing of the application A: document forming the basis of a grant of a patent D: document cited for other reasons K: member of the same patent family, corresponding document P: intermediate document	