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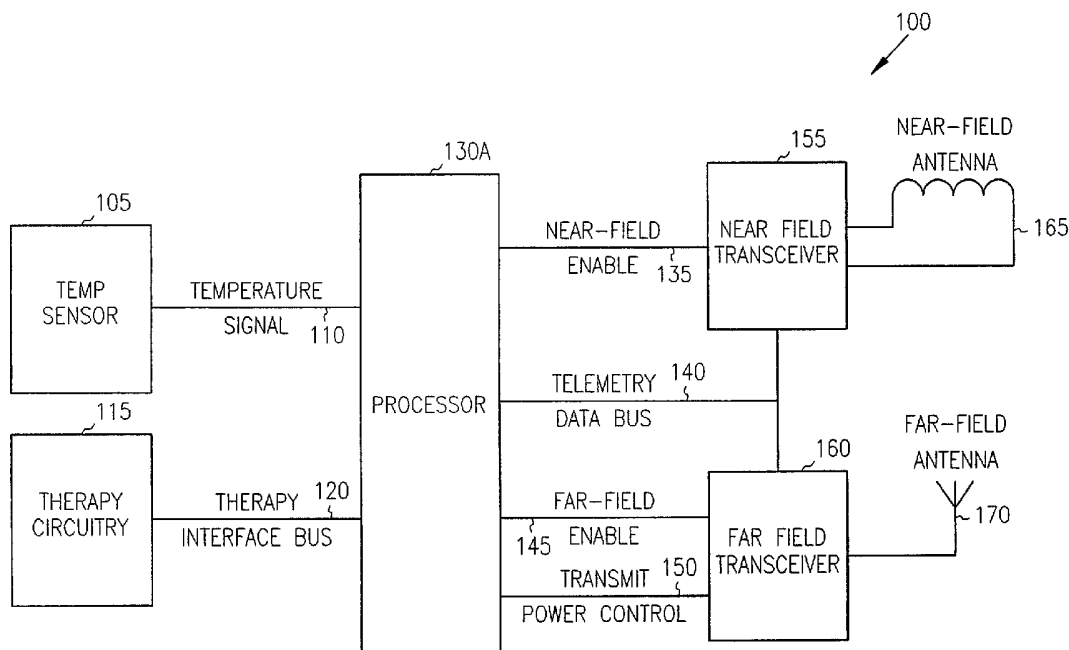
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claims and to be republished in the event of receipt of  
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24 June 2004

[Continued on next page]

(54) Title: FAR-FIELD TELEMETRY IN A MEDICAL DEVICE



(57) Abstract: Radio frequency bandwidth from a far field transmitter of an implantable medical device is adjusted by controlling the data rate, the output power level, the transmitter supply voltage or combinations thereof. Adjustments are made on the basis of a sensed temperature, absence or presence of a lead or by way of wave shaping. A Surface Acoustic Wave (SAW) resonator based transmitter exhibits stable bandwidth in a temperature controlled operating environment. For temperatures outside of the range of human body temperature, the output of the SAW-based transmitter is adjusted to provide reduced bandwidth.



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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 03/24778

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 A61N1/372

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61N

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

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/065539 A1 (VON ARX JEFFREY A ET AL) 30 May 2002 (2002-05-30) the whole document ---	18-20, 22,23
X	US 5 593 430 A (RENGER HERMAN L) 14 January 1997 (1997-01-14) column 11, line 13 -column 12, line 16 ---	1
A	US 5 025 808 A (HAFNER CURTIS R) 25 June 1991 (1991-06-25) column 1, line 45 -column 2, line 29 column 11, line 30 - line 50 -----	2-12
A		13-17

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"8" document member of the same patent family

Date of the actual completion of the international search

13 April 2004

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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 03/24778

### Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

#### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-12

transmitter controlled by a signal responsive to a temperature.

2. Claims: 13-17

lead detection circuit.

3. Claims: 18-24

implantable therapy system having a controlled transmitter having a modulation input.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/24778

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002065539 A1	30-05-2002	US 2003195589 A1	16-10-2003
US 5593430 A	14-01-1997	NONE	
US 5025808 A	25-06-1991	NONE	