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(54) Title: CANCELLATION OF RINGING ARTIFACTS AND FAR FIELD INTERFERENCE IN NUCLEAR QUADRUPOLE RESONANCE

(57) Abstract: A device and method for detecting a class of target species containing quadrupolar nuclei in a specimen by nuclear quadrupole resonance, comprising pulse generating means for generating a three-pulse-composite-pulse to refocus signals that were excited by another pulse, irradiating means for irradiating a specimen with the three-pulse-composite-pulse, detecting means for detecting an NQR signal in response to irradiating the specimen, coupling means for transmitting the three-pulse-composite-pulse to the irradiating means, coupling means for receiving the NQR signal from the detecting means and transform means for converting the free induction decay signal into a frequency domain signal.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 08/06349

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G01V 3/00 (2008.04)
USPC - 324/300
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)
USPC- 324/300

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC- 324/316; 324/307; 324/318 343/703; 324/314; 343/867 (text search)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
US WEST (PGPB,USPT,EPAB,JPAB), Google Scholar, Dialog PRO (Engineering): nuclear quadrupolar resonance, NQR, narcotics, explosives, composite-pulse, multi-pulse, three-pulse, interference, ringing, artifact, cocaine, trinitrotoluene, TNT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---- Y	US 2004/0196036 A1 (LAI et al.) 07 Oct 2004 (07.10.2004); para [0002], [0017],[0018], [0042]-[0047], [0057], [0060]-[0067], [0071]	1-2, 4-14 ---------- 3, 15-21
Y	US 6,392,408 B1 (BARRALL et al.) 21 May 2002 (21.05.2002); col 5, ln 13-15; ln 17-55; col 8, ln 12-18; ln 49-54; col 13, ln 5-11	3, 15-21

☐ Further documents are listed in the continuation of Box C. ☐

* 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 application or patent but published on or after the international filing date
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"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
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 November 2008 (26.11.2008)	10 DEC 2008
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774