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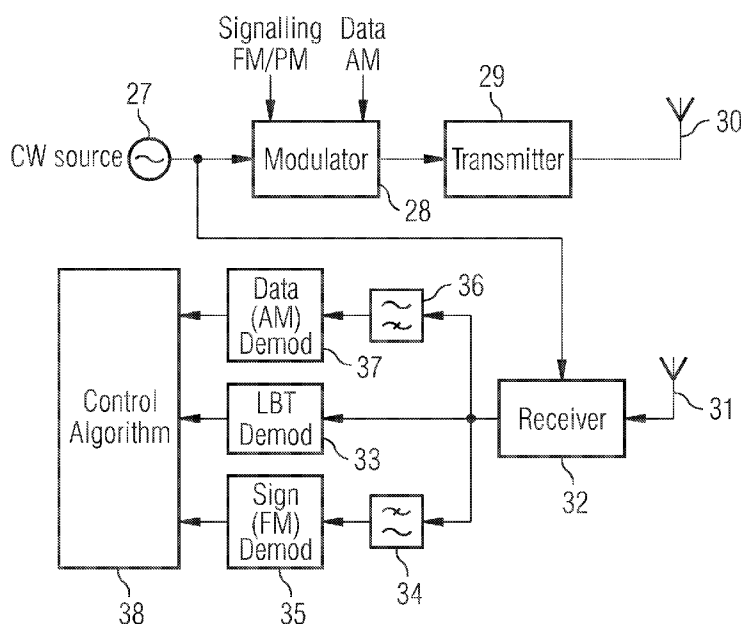
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[Continued on next page]

(54) Title: A RADIO FREQUENCY IDENTIFICATION INTERROGATOR



(57) Abstract: A radio frequency identification interrogator comprises a transmitter (27, 28, 29) and a receiver (32). The transmitter transmits an interrogation signal and the receiver receives a backscattered signal from one or more tags. The transmitter includes a modulator (28) which further modulates signalling information from a signalling channel onto a continuous wave signal (27). The modulated signalling channel signals are orthogonal to reader to tag and tag to reader data transmissions.

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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2006/050198

A. CLASSIFICATION OF SUBJECT MATTER
INV. G06K7/00 H04L5/00

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)
G06K H04L H04J G01S

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	WO 03/102857 A (MARCONI INTELLECTUAL PROPERTY [US]) 11 December 2003 (2003-12-11)	1-3,5,13
Y	page 3, line 1 - page 5, line 10 page 8, line 12 - page 10, line 8 page 14, line 13 - page 16, line 7 page 19, line 11 - line 18; figures 4-6	14
P,X	US 2006/087406 A1 (WILLINS BRUCE A [US] ET AL) 27 April 2006 (2006-04-27) the whole document	1-3,5,13
A	WO 01/82520 A2 (WHERE NET CORP [US]) 1 November 2001 (2001-11-01) page 7, line 13 - line 27 page 13, line 25 - page 15, line 27; figure 7	1-3,13
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☒ Further documents are listed in the continuation of Box C.

☒ See patent family 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
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
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- *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.
- * & * document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 01/08116 A2 (ACTIVERF LTD [GB]; BEART PILGRIM [GB]; BEART JASON [GB]) 1 February 2001 (2001-02-01) page 4, line 4 - line 14 page 7, line 19 - line 31 -----	14
X	US 6 034 603 A (STEEVES WAYNE E [US]) 7 March 2000 (2000-03-07) column 5, line 44 - line 46 abstract -----	13
P,X	WO 2006/037239 A (ELEKTROBIT AG [CH]; KUENG ROLAND [CH]) 13 April 2006 (2006-04-13) abstract page 2, line 22 - page 3, line 4 page 4, line 20 - page 7, line 11 page 9, line 23 - page 12, line 3; figure 3 -----	1-4,6-12
A	"Electromagnetic compatibility and Radio spectrum Matters (ERM);RFID equipment operating in the band 865-868 MHz" ETSI STANDARDS, EUROPEAN TELECOMMUNICATIONS STANDARDS INSTITUTE, vol. ETSI302208-1, no. V1.1.1, September 2004 (2004-09), XP002431346 ISSN: 0000-0001 page 10, paragraph 4.1.1.1.1 - paragraph 4.1.1.1.2 -----	6-12
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X	EP 0 459 659 A (MARCONI GEC LTD [GB]) 4 December 1991 (1991-12-04) page 1, line 55 - page 2, line 3 -----	15
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A	US 2003/034887 A1 (CRABTREE TIMOTHY L [US] ET AL CRABTREE TIMOTHY L [US] ET AL) 20 February 2003 (2003-02-20) paragraph [0102] - paragraph [0105] -----	15

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2006/050198

Box II Observations where certain claims were found unsearchable (Continuation of item 2 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 III Observations where unity of invention is lacking (Continuation of item 3 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: 1-5,13,14

an interrogator comprising a modulator for modulating onto the interrogation signal additional information signal, said information signal modulated as an upper sideband of a single (lower) sideband modulated interrogator-to-tag and tag-to-interrogator transmissions;

2. claims: 6-12

a method of operating a frequency-division multiple access interrogation system, wherein the interrogator changes the channel only if the emissions in the present channel both exceed a certain threshold and include an identifier of another interrogator;

3. claim: 15

a method of locating a tag in a multi-interrogator system based on the strength of the tag response to the different interrogators.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2006/050198

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