

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
25 October 2007 (25.10.2007)

PCT

(10) International Publication Number  
**WO 2007/121370 A3**

(51) International Patent Classification:  
**G06F 15/173** (2006.01)

(21) International Application Number:  
PCT/US2007/066654

(22) International Filing Date: 13 April 2007 (13.04.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
11/403,265 13 April 2006 (13.04.2006) US

(71) Applicant (for all designated States except US): **CARRIER IQ, INC.** [US/US]; 1200 Villa Street, Mountain View, CA 94041 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **JAQUET, James, R.** [US/US]; 1167 Bucknam Court, Campbell, CA 95008 (US).

(74) Agents: **ISRAELSEN, R., Burns** et al.; Workman Nydegger, 1000 Eagle Gate Tower, 60 East South Temple, Salt Lake City, UT 84111 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

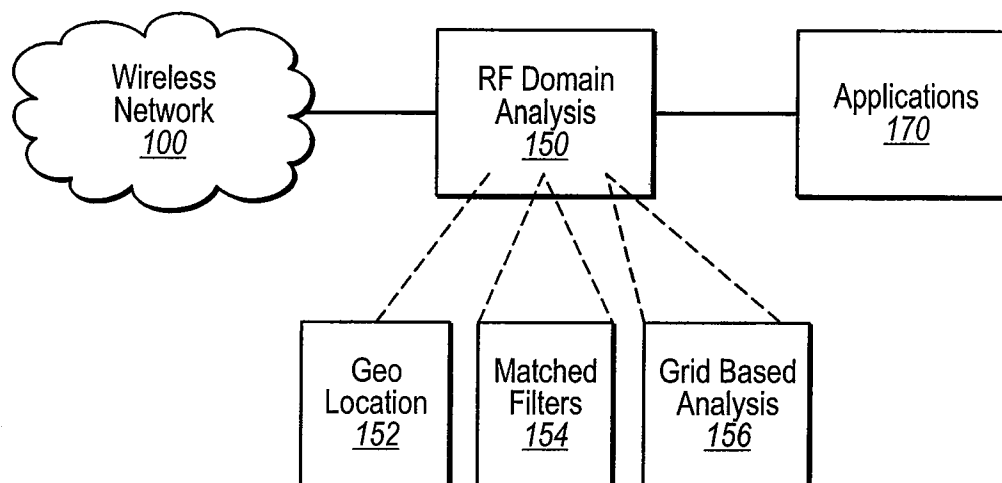
— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

**Published:**

— with international search report

(88) Date of publication of the international search report:  
24 July 2008

(54) Title: ANALYSIS OF ARBITRARY WIRELESS NETWORK DATA USING MATCHED FILTERS



(57) Abstract: Analyzing an arbitrary data set to determine the presence or absence of a defined signature element, in order to understand an event or detect a root cause of an event in a wireless network. Signatures are generated and include signature elements. The signature elements in a given signature are associated with a coverage model. A data set is processed and values that correspond to each signature element are computed from the data set. The probability of detection for a given signature can then be computed based on the values computed from the data set, the coverage model and a statistical factor included in the signature. Different events typically have different signature elements in the associated signature.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 07/66654

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G06F 15/173 (2007.10)

USPC - 709/224

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)  
709/224Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
709/224; 707/1,6, and 7

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Database: USPTO WEST (PGPB, USPT, USOC, EPAB, JPAB) Google

Search Terms: data, information, analyze, diagnose, wireless, RF, signature, filter

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/0046382 A1 (Nick) 06 March 2003 (06.03.2003), abstract; para [0005], [0007], [0014]-[0016], [0030]-[0032], [0036], [0039], [0042], [0047]-[0050]; figs 2, 4, 5a, 5b, 5c	1-24
A	US 2003/0191837 A1 (Chen) 09 October 2003 (09.10.2003)	1-24
A	US 6,879,812 B1 (Agrawal et al.) 12 April 2005 (12.04.2005)	1-24
A	US 2004/0093413 A1 (Bean et al.) 13 May 2004 (13.05.2004)	1-24
A	US 2005/0085973 A1 (Furem et al.) 21 April 2005 (21.04.2005)	1-24



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

"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

"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

"&amp;" document member of the same patent family

Date of the actual completion of the international search

31 December 2007 (31.12.2007)

Date of mailing of the international search report

02 APR 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