(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
12 September 2002 (12.09.2002)

PCT

(10) International Publication Number
WO 02/071645 A3

(51) International Patent Classification[7]: H04B 7/005

(21) International Application Number: PCT/US02/06693

(22) International Filing Date: 1 March 2002 (01.03.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/272,999 2 March 2001 (02.03.2001) US

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(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations*
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations*
— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*
— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*
— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*

Published:
— *with international search report*

(88) Date of publication of the international search report:
6 November 2003

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.

(54) Title: POWER OFFSET REDUCTION ALGORITHM DURING SOFT HANDOFF FOR FAST FORWARD POWER CONTROL

(57) Abstract: A wireless communication network includes base stations that operate with variable transmit power adjustments during soft handoff of a mobile station. Base stations adjust current transmit powers up or down using variable step sizes responsive to power control commands from the mobile station. Step size depends on the difference between current transmit power and a common reference power. Generally, power control commands that move transmit power away from the common reference power are attenuated by decreasing the step size, and those that move the transmit power toward the reference power are amplified by increasing step size. A base station controller adjusts the common reference power during soft handoff to reduce differences between it and the current transmit powers. Thus, step size may be large at the outset of soft handoff to quickly reduce transmit power imbalance between base stations, but tends to decrease with subsequent adjustments of the common reference power.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 02/06693

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04B7/005

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 H04B

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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 52310 A (NOKIA TELECOMMUNICATIONS OY ;SALONAHO OSCAR (FI)) 14 October 1999 (1999-10-14)	1-8, 19-27, 36,37, 44,45, 48,49
Y	abstract page 1, line 14-30 page 2, line 1-26 page 3, line 28 -page 4, line 20 page 5, line 13 -page 8, line 15	11,18, 29,35, 43,47,51
A	figures 3-5	9,10, 12-17, 28, 30-34, 38-42, 46,50

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[X] Further documents are listed in the continuation of box C.

[X] 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

"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.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
6 September 2002	15. 04. 03

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Helms, J

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

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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	US 5 893 035 A (CHEN TAO) 6 April 1999 (1999-04-06)	11,18, 29,35, 43,47,51
A	abstract	1-10, 12-17, 19-28, 30-34, 36-42, 44-46, 48-50
	column 2, line 38 -column 4, line 54	
A	US 5 884 187 A (TIEDEMANN JR EDWARD G ET AL) 16 March 1999 (1999-03-16) column 17, line 45 -column 18, line 11 abstract column 22, line 53 -column 23, line 30 column 29, line 2-35	1-51
A	EP 1 069 702 A (LUCENT TECHNOLOGIES INC) 17 January 2001 (2001-01-17) abstract	1-51

INTERNATIONAL SEARCH REPORT

ernational application No.
PCT/US 02/06693

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: 1-10, 19-28

Independent claim 1 relates to a method of controlling transmit powers at a plurality of base stations during a soft handoff, wherein the base stations adjust the transmit powers responsive to power commands from the mobile station and the step size of the power adjustments is a function of the current transmit powers and a common reference power which is adjusted based on power measurement reports from the mobile station.

Independent claim 19 relating to a wireless communication network is the corresponding apparatus claim to method claim 1.

Claim 2 depending on claim 1 and claim 20 depending on claim 19 state that the step size variation of the power adjustment is based on a difference between the current transmit power of the base station and the common reference power.

2. Claims: 11-17, 29-34

Claim 11 depending on claim 1 and claim 29 depending on claim 19 state that the adjustment of the common reference power based on reported frame errors at the mobile station comprises adjusting the common reference power upward if the mobile station send a frame error report.

3. Claims: 18, 35

Claim 18 depending on claim 1 and claim 35 depending on claim 19 state that the power measurement report from the mobile station includes the number of error frames since the last power measurement report.

4. Claims: 36-51

Independent claims 36, 44 and 48 relate to a method, a base station controller and a processor, respectively, for controlling a common reference power used by a plurality of base stations during a soft handoff to vary the step size of forward link transmit power adjustments.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 02/06693

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