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201310198436.1 2013 年 5 月 24 日 (24.05.2013) CN
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(81) 指定国 (除另有指明, 要求每一种可提供的国家保护): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW。

(84) 指定国 (除另有指明, 要求每一种可提供的地区保护): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), 欧亚 (AM, AZ, BY, KG, KZ, RU, TJ, TM), 欧洲 (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO,

[见续页]

(54) Title: SMALL CELL ENODEB ACCESS SYSTEM AND METHOD FOR REALIZING NETWORK ACCESS THEREFOR

(54) 发明名称: 一种小蜂窝基站接入系统及其实现网络接入的方法

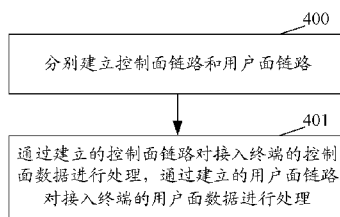


图 4 / FIG. 4

400 ESTABLISHING A CONTROL PLANE LINK AND A USER PLANE LINK RESPECTIVELY
401 PROCESSING CONTROL PLANE DATA WHICH ACCESSES USER EQUIPMENT THROUGH THE ESTABLISHED CONTROL PLANE LINK, AND PROCESSING USER PLANE DATA WHICH ACCESSES THE USER EQUIPMENT THROUGH THE ESTABLISHED USER PLANE LINK

(57) Abstract: A small cell eNodeB access system and a method for realizing the network access therefore, including: establishing a control plane link and a user plane link respectively, and a small cell eNodeB access system processing control plane data which accesses user equipment through the established control plane link, and processing user plane data which accesses the user equipment through the established user plane link. The embodiments of the present invention allow data transmission/reception to exist at the same time in user equipment and two different eNodeBs, such as macrocell (eNodeB) and microcell (eNodeB) by separating a control plane and a data plane, so as to increase the user throughput and enhance the mobile performance, and solve the problem that the inter-cell switching makes the inter-node information interaction frequent and causes an impact on a core network, thereby realizing the introduction of a large number of microcell eNodeBs of a wireless side.

(57) 摘要: 一种小蜂窝基站接入系统及其实现网络接入的方法, 包括分别建立控制面链路和用户面链路, 小蜂窝基站接入系统通过建立的控制面链路对接入终端的控制面数据进行处理, 通过建立的用户面链路对接入终端的用户面数据进行处理。本发明实施例通过控制面与数据面的分离, 使得终端与两个不同的基站如宏蜂窝 (基站) 和小蜂窝 (基站) 同时存在数据收发, 增加了用户吞吐量和增强了移动性能, 并解决了用户在小区间切换使得节点间信息交互频繁、对核心网造成冲击的问题, 进而实现了无线侧的大量小蜂窝基站的引入。



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RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG)。

根据细则 4.17 的声明:

- 关于申请人有权申请并被授予专利(细则 4.17(ii))
- 发明人资格(细则 4.17(iv))

本国际公布:

- 包括国际检索报告(条约第 21 条(3))。

- 在修改权利要求的期限届满之前进行, 在收到该修改后将重新公布(细则 48.2(h))。
- 根据申请人的请求, 在条约第 21 条(2)(a)所规定的期限届满之前进行。

(88) 国际检索报告公布日期: 2014 年 4 月 24 日

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2013/080035**A. CLASSIFICATION OF SUBJECT MATTER**

See the extra sheet

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: H04W; H04Q; H04L

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 practicable, search terms used)

CNPAT, CNKI, WPI, EPODOC: LTE, long term evolution, small-cell, control plane, user plane, gateway, access network, core network, link, base station, nodeB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 101686578 A (ZTE CORP.), 31 March 2010 (31.03.2010), the whole document	1-30
A	CN 102075859 A (DATANG MOBILE COMMUNICATIONS EQUIPMENT CO., LTD.), 25 May 2011 (25.05.2011), the whole document	1-30
A	CN 1461152 A (ALCATEL COMPANY), 10 December 2003 (10.12.2003), the whole document	1-30

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	“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
“A” document defining the general state of the art which is not considered to be of particular relevance	“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
“E” earlier application or patent but published on or after the international filing date	“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
“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)	“&” document member of the same patent family
“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	

Date of the actual completion of the international search 08 February 2014 (08.02.2014)	Date of mailing of the international search report 27 February 2014 (27.02.2014)
Name and mailing address of the ISA/CN: State Intellectual Property Office of the P. R. China No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088, China Facsimile No.: (86-10) 62019451	Authorized officer ZHANG, Qi Telephone No.: (86-10) 62413298

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2013/080035

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 101686578 A	31.03.2010	None	
CN 102075859 A	25.05.2011	WO 2012083809 A1	28.06.2012
CN 1461152 A	10.12.2003	EP 1363468 A1	19.11.2003
		US 2003214925 A1	20.11.2003
		DE 60201733 E	02.12.2004
		AT 281048 T	15.11.2004

A. 主题的分类

H04W 28/02 (2009.01) i

按照国际专利分类(IPC)或者同时按照国家分类和 IPC 两种分类

B. 检索领域

检索的最低限度文献(标明分类系统和分类号)

IPC: H04W; H04Q; H04L

包含在检索领域中的除最低限度文献以外的检索文献

在国际检索时查阅的电子数据库(数据库的名称, 和使用的检索词(如使用))

CNPAT, CNKI, WPI, EPODOC: 长期演进, LTE, 小蜂窝, 控制面, 用户面, 网关, 接入网, 核心网, 链路, 基站, long term evolution, small-cell, control plane, user plane, gateway, access network, core network, link, base station, nodeB

C. 相关文件

类 型*	引用文件, 必要时, 指明相关段落	相关的权利要求
A	CN 101686578 A (中兴通讯股份有限公司) 31.3 月 2010 (31.03.2010) 全文	1-30
A	CN 102075859 A (大唐移动通信设备有限公司) 25.5 月 2011 (25.05.2011) 全文	1-30
A	CN 1461152 A (阿尔卡特公司) 10.12 月 2003 (10.12.2003) 全文	1-30

☐ 其余文件在 C 栏的续页中列出。☒ 见同族专利附件。

* 引用文件的具体类型:

“A” 认为不特别相关的表示了现有技术一般状态的文件

“E” 在国际申请日的当天或之后公布的在先申请或专利

“L” 可能对优先权要求构成怀疑的文件, 或为确定另一篇引用文件的公布日而引用的或者因其他特殊理由而引用的文件(如具体说明的)

“O” 涉及口头公开、使用、展览或其他方式公开的文件

“P” 公布日先于国际申请日但迟于所要求的优先权日的文件

“T” 在申请日或优先权日之后公布, 与申请不相抵触, 但为了理解发明之理论或原理的在后文件

“X” 特别相关的文件, 单独考虑该文件, 认定要求保护的发明不是新颖的或不具有创造性

“Y” 特别相关的文件, 当该文件与另一篇或者多篇该类文件结合并且这种结合对于本领域技术人员为显而易见时, 要求保护的发明不具有创造性

“&” 同族专利的文件

国际检索实际完成的日期

08.2 月 2014 (08.02.2014)

国际检索报告邮寄日期

27.2 月 2014 (27.02.2014)

ISA/CN 的名称和邮寄地址:

中华人民共和国国家知识产权局

中国北京市海淀区蓟门桥西土城路 6 号 100088

传真号: (86-10)62019451

受权官员

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电话号码: (86-10) 62413298

国际检索报告
关于同族专利的信息

国际申请号
PCT/CN2013/080035

检索报告中引用的 专利文件	公布日期	同族专利	公布日期
CN 101686578 A	31.03.2010	无	
CN 102075859 A	25.05.2011	WO 2012083809 A1	28.06.2012
CN 1461152 A	10.12.2003	EP 1363468 A1	19.11.2003
		US 2003214925 A1	20.11.2003
		DE 60201733 E	02.12.2004
		AT 281048 T	15.11.2004