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- (22) 国际申请日: 2013 年 7 月 24 日 (24.07.2013)
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201310092694.1 2013 年 3 月 21 日 (21.03.2013) 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, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG)。
- 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))。

[见续页]

(54) Title: METHOD AND APPARATUS FOR SENDING POWER HEADROOM REPORT

(54) 发明名称: 发送功率余量报告的方法及装置

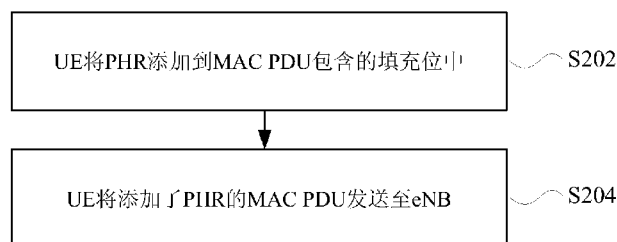


图 2 /Fig.2

S202 A UE ADDS A PHR IN A PADDING BIT CONTAINED IN AN MAC PDU
S204 THE UE SENDS THE MAC PDU ADDED WITH THE PHR TO AN ENB

(57) Abstract: Disclosed are a method and an apparatus for sending a power headroom report (PHR). The method comprises: a UE sending a MAC PDU added with a PHR to an eNB. By means of the present invention, a PHR can be sent to an eNB by adding the PHR in a padding bit contained in an MAC PDU in a situation in which the PHR cannot be sent, and a problem is solved in which the eNB cannot learn about uplink quality information about a UE in time because the PHR cannot be sent to the eNB when a condition for triggering the PHR are not met, thereby saving uplink transmission resources; meanwhile, the uplink quality information about the UE can be provided to the eNB more timely, thereby helping the eNB perform scheduling more accurately and timely.

(57) 摘要: 本发明公开了一种发送功率余量报告的方法及装置, 其中, 该方法包括: UE 将添加了 PHR 的 MAC PDU 发送至 eNB。通过采用本发明, 可以在不能发送 PHR 的情况下, 将 PHR 添加在 MAC PDU 包含的填充位中发送至 eNB, 解决了相关技术中, 当无法满足触发 PHR 的条件时, 无法发送 PHR 至 eNB, 导致 eNB 无法及时了解 UE 的上行链路质量信息的问题, 进而可以节省上行链路的传输资源, 同时, 也能更及时的提供 UE 的上行链路质量信息给 eNB, 帮助 eNB 更加准确及时的调度。

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- 根据申请人的请求，在条约第 21 条(2)(a)所规定 (88) 国际检索报告公布日期: 2014 年 2 月 20 日的期限届满之前进行。

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2013/080018

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; H04B; H04J

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)

WPI, EPODOC, CNPAT, CNKI: PHR, MAC, PDU, padding bit, carry, fill, power headroom report, media access control, protocol data unit, padding, add+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 102316569 A (ZTE CORP.), 11 January 2012 (11.01.2011), description, paragraphs [0105]-[0114], and figure 5	1-10
A	CN 102104905 A (ACADEMY OF TELECOMMUNICATION TECHNOLOGY), 22 June 2011 (22.06.2011), the whole document	1-10
A	WO 2011159123 A2 (PANTECH CO., LTD. et al.), 22 December 2011 (22.12.2011), the whole document	1-10
A	WO 2012128549 A2 (LG ELECTRONICS INC. et al.), 27 September 2012 (27.09.2012), the whole document	1-10

☐ 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
25 November 2013 (25.11.2013)

Date of mailing of the international search report
26 December 2013 (26.12.2013)

Name and mailing address of the ISA/CN:
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2013/080018

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 102316569 A	11.01.2011	WO 2012000355 A1	05.01.2012
		EP 2472942 A1	04.07.2012
		US 2012182960 A1	19.07.2012
CN 102104905 A	22.06.2011	WO 2012019566 A1	16.02.2012
		KR 20130028748 A	19.03.2013
		US 2013188570 A1	25.07.2013
		EP 2627115 A1	14.08.2013
WO 2011159123 A2	22.12.2011	KR 20110137446 A	23.12.2011
		KR 20110139978 A	30.12.2011
		US 2013064131 A1	14.03.2013
WO 2012128549 A2	27.09.2012	None	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2013/080018

CONTINUATION: A. CLASSIFICATION OF SUBJECT MATTER

H04W 24/10 (2009.01) i

H04W 72/12 (2009.01) i

A. 主题的分类

见附加页

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; H04B; H04J

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))

WPI, EPODOC, CNPAT, CNKI: 功率余量报告, PHR, 媒体访问控制, MAC, 协议数据单元, PDU, 填充位, 填充比特, 添, 加, 携带, 填, power headroom report, media access control, protocol data unit, padding, add+

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 102316569 A (中兴通讯股份有限公司) 11.1 月 2012 (11.01.2011) 说明书第[0105]-[0114]段, 图 5	1-10
A	CN 102104905 A (电信科学技术研究院) 22.6 月 2011 (22.06.2011) 全文	1-10
A	WO 2011159123 A2 (PANTECH CO., LTD.等) 22.12 月 2011 (22.12.2011) 全文	1-10
A	WO 2012128549 A2 (LG ELECTRONICS INC.等) 27.9 月 2012 (27.09.2012) 全文	1-10

☐ 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

25.11 月 2013 (25.11.2013)

国际检索报告邮寄日期

26.12 月 2013 (26.12.2013)

ISA/CN 的名称和邮寄地址:

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国际检索报告
关于同族专利的信息

国际申请号
PCT/CN2013/080018

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 102316569 A	11.01.2011	WO 2012000355 A1	05.01.2012
		EP 2472942 A1	04.07.2012
		US 2012182960 A1	19.07.2012
CN 102104905 A	22.06.2011	WO 2012019566 A1	16.02.2012
		KR 20130028748 A	19.03.2013
		US 2013188570 A1	25.07.2013
		EP 2627115 A1	14.08.2013
WO 2011159123 A2	22.12.2011	KR 20110137446 A	23.12.2011
		KR 20110139978 A	30.12.2011
		US 2013064131 A1	14.03.2013
WO 2012128549 A2	27.09.2012	无	

续: A. 主题的分类

H04W 24/10 (2009.01) i

H04W 72/12 (2009.01) i