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(71) 申请人: **中兴通讯股份有限公司 (ZTE CORPORATION)** [CN/CN]; 中国广东省深圳市南山区高新技术产业园科技南路中兴通讯大厦, Guangdong 518057 (CN)。

(72) 发明人: **程明明 (CHENG, Mingming)**; 中国广东省深圳市南山区高新技术产业园科技南路中兴通讯大厦, Guangdong 518057 (CN)。 **张伟良 (ZHANG, Weiliang)**; 中国广东省深圳市南山区高新技术产业园科技南路中兴通讯大厦, Guangdong 518057 (CN)。 **袁立权 (YUAN, Liquan)**; 中国广东省深圳市南山区高新技术产业园科技南路中兴通讯大厦, Guangdong 518057 (CN)。 **沈天光 (SHEN, Tianguang)**; 中国广东省深圳市南山区高新技术产业园科技南路中兴通讯大厦, Guangdong 518057 (CN)。

(74) 代理人: **北京康信知识产权代理有限责任公司 (KANGXIN PARTNERS,P.C.)**; 中国北京市海淀区知春路甲 48 号盈都大厦 A 座 16 层, Beijing 100098 (CN)。

(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,

[见续页]

(54) Title: METHOD, SYSTEM, END OFFICE DEVICE, AND CPE FOR ADJUSTING UPLINK/DOWNLINK TIME ALLOCATION

(54) 发明名称 : 调整上下行时间分配的方法、系统、局端设备及 CPE

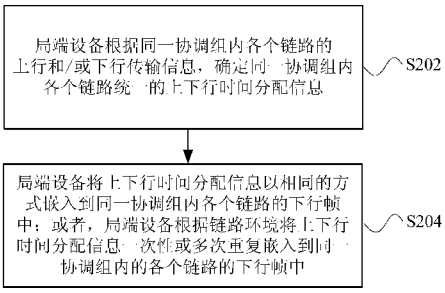

图 2 /Fig.2

S202 AN OFFICE END DEVICE DETERMINES UNIFIED UPLINK/DOWNLINK TIME ALLOCATION INFORMATION OF EACH LINK IN THE SAME COORDINATION GROUP ACCORDING TO UPLINK AND/OR DOWNLINK TRANSMISSION INFORMATION OF EACH LINK IN THE SAME COORDINATION GROUP
S204 THE OFFICE END DEVICE EMBEDS THE UPLINK/DOWNLINK TIME ALLOCATION INFORMATION INTO A DOWNLINK FRAME OF EACH LINK IN THE SAME COORDINATION GROUP IN THE SAME MANNER; OR THE OFFICE END DEVICE EMBEDS THE UPLINK/DOWNLINK TIME ALLOCATION INFORMATION ONCE OR REPEATEDLY INTO A DOWNLINK FRAME OF EACH LINK IN THE SAME COORDINATION GROUP ACCORDING TO A LINK ENVIRONMENT

(57) **Abstract**: Disclosed are a method, a system, an office end device, and customer premise equipment for adjusting uplink/downlink time allocation, comprising: the office end device determining unified uplink/downlink time allocation information of each link in the same coordination group according to uplink and/or downlink transmission information of each link in the same coordination group; and the office end device embedding the uplink/downlink time allocation information into a downlink frame of each link in the same coordination group in the same manner, or the office end device embedding the uplink/downlink time allocation information once or repeatedly into a downlink frame of each link in the same coordination group according to a link environment. In the present invention, the office end device is enabled to transmit the uplink/downlink time allocation information to the customer premise equipment by means of a reliable method, so as to enable the system to dynamically adjust allocation of transmission resources in accordance with link data traffic, thereby achieving the effect of increasing the utilization rate of the transmission resources.

(57) **摘要**: 本发明公开了一种调整上下行时间分配的方法、系统、局端设备及用户端设备，其中，包括：局端设备根据同一协调组内各个链路的上行和/或下行传输信息，确定同一协调组内各个链路统一的上下行时间分配信息；局端设备将上下行时间分配信息以相同的方式嵌入到同一协调组内各个链路的下行帧中，或者，局端设备根据链路环境将上下行时间分配信息一次性或多次重复嵌入到同一协调组内的各个链路的下行帧中。通过本发明，使得局端设备通过一种可靠的方法将上下行时间分配的信息传输给用户端设备，以实现系统适应于链路数据流量，动态调整传输资源的分配，从而具有提高传输资源利用率的效果。

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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))。

— 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 1 月 23 日

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2013/080612

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)

JPC: H04L; H04W; H04J; H04B; H04Q

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)

CNKI, CNPAT, WPI, EPODOC, IEEE: uplink and downlink, time slot, schedule, arrange, local side, optical line terminal, user side, optical network unit, coordination group, uniform, same, begin, transmit, send, up?link, down?link, time, slot?, assign+, allocat+, allot+, attemper+, OLT, ONU, TDD, group, frame, ID, identifier, end+, finish+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 101471763 A (SHANGHAI OPULAN TECHNOLOGIES CO., LTD.), 01 July 2009 (01.07.2009), abstract, description, page 3, the last paragraph to page 7, penultimate paragraph	1-10, 12-19, 23
Y	CN 102387426 A (ZTE CORP.), 21 March 2012 (21.03.2012), abstract, and description, paragraphs [0029]-[0044]	1-10, 12-19, 23
Y	CN 101606347 A (LG ELECTRONICS INC.), 16 December 2009 (16.12.2009), abstract, description, page 8, paragraph 1 to page 11, paragraph 2	1-10, 12-19, 23
Y	CN 101834659 A (MITSUBISHI ELECTRIC CORP.), 15 September 2010 (15.09.2010), description, paragraphs [0003]-[0021]	11, 20-23
Y	CN 101568168 A (HUAWEI TECHNOLOGIES CO., LTD.), 28 October 2009 (28.10.2009), description, page 4, paragraph 7 to page 6, paragraph 5	11, 20-23
A	US 2004057407 A1 (BALACHANDRAN, K. et al.), 25 March 2004 (25.03.2004), the whole document	1-23

☐ 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 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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
18 October 2013 (18.10.2013)	**01 November 2013 (07.11.2013)**
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 **LI, Xiaoli** Telephone No.: (86-10) **62413369**

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2013/080612

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 101471763 A	01.07.2009	None	
CN 102387426 A	21.03.2012	WO 2012028014 A1	03.08.2012
CN 101606347 A	16.12.2009	EP 2092680 A1	26.08.2009
		WO 2008127015 A1	23.10.2008
		INMUMNP 200901244 E	14.05.2010
		US 2012314627 A1	13.12.2012
		KR 20080092222 A	15.10.2008
		US 2010027447 A1	04.02.2010
		US 2010027446 A1	04.02.2010
		JP 2010516164 A	13.05.2010
		KR 20090095592 A	09.09.2009
CN 101834659 A	15.09.2010	JP 2011019258 A	27.01.2011
		WO 2007048478 A1	03.05.2007
		WO 2007048478 A1	02.04.2009
		EP 2134006 A1	16.12.2009
		CN 101305531 A	12.11.2008
		KR 20080069587 A	28.07.2008
		US 2008232278 A1	25.09.2008
		KR 20100095482 A	30.08.2010
		EP 1821429 A2	22.08.2007
		JP 2009514280 A	02.04.2009
CN 101568168 A	28.10.2009	None	
US 2004057407 A1	25.03.2004	None	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2013/080612

CONTINUATION: A. CLASSIFICATION OF SUBJECT MATTER

H04L 5/00 (2006.01) i

H04L 5/14 (2006.01) i

H04L 1/00 (2006.01) i

国际检索报告

国际申请号
PCT/CN2013/080612

A. 主题的分类

参见附加页

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: H04L; H04W; H04J; H04B; H04Q

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）)

CNKI, CNPAT, WPI, EPODOC, IEEE: 上行，下行，上下行，时间，时隙，调度，分配，安排，局端，光线路终端，用户端，光网络单元，协调组，组，统一，相同，同样，结束，完成，指示，标识，开始，传输，发送，传送，up?link, down?link, time, slot?, assign+, allocat+, allot+, attemper+, OLT, ONU, TDD, group, frame, ID, identifier, end+, finish+

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
Y	CN 101471763 A（普然通讯技术(上海)有限公司）01.7 月 2009（01.07.2009）说明书摘要，说明书第 3 页最后 1 段-第 7 页倒数第 2 段	1-10，12-19，23
Y	CN 102387426 A（中兴通讯股份有限公司）21.3 月 2012（21.03.2012）说明书摘要，说明书第[0029]-[0044]段	1-10，12-19，23
Y	CN 101606347 A（LG 电子株式会社）16.12 月 2009（16.12.2009）说明书摘要，说明书第 8 页第 1 段-第 11 页第 2 段	1-10，12-19，23
Y	CN 101834659 A（三菱电机株式会社）15.9 月 2010（15.09.2010）说明书第[0003]-[0021]段	11，20-23
Y	CN 101568168 A（华为技术有限公司）28.10 月 2009（28.10.2009）说明书第 4 页第 7 段-第 6 页第 5 段	11，20-23
A	US 2004057407 A1（BALACHANDRAN, Krishna 等）25.3 月 2004（25.03.2004）全文	1-23

☐ 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	国际检索报告邮寄日期
18.10 月 2013（18.10.2013）	**07.11 月 2013 (07.11.2013)**
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 李晓利 电话号码：(86-10) **62413369**

国际检索报告
关于同族专利的信息

国际申请号
PCT/CN2013/080612

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 101471763 A	01.07.2009	无	
CN 102387426 A	21.03.2012	WO 2012028014 A1	03.08.2012
CN 101606347 A	16.12.2009	EP 2092680 A1	26.08.2009
		WO 2008127015 A1	23.10.2008
		INMUMNP 200901244 E	14.05.2010
		US 2012314627 A1	13.12.2012
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		US 2010027447 A1	04.02.2010
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CN 101834659 A	15.09.2010	JP 2011019258 A	27.01.2011
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		WO 2007048478 A1	02.04.2009
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		US 2008232278 A1	25.09.2008
		KR 20100095482 A	30.08.2010
		EP 1821429 A2	22.08.2007
		JP 2009514280 A	02.04.2009
CN 101568168 A	28.10.2009	无	
US 2004057407 A1	25.03.2004	无	

续：**A. 主题的分类**

H04L 5/00 (2006.01) i

H04L 5/14 (2006.01) i

H04L 1/00 (2006.01) i