

(12) 按照专利合作条约所公布的国际申请

(19) 世界知识产权组织
国际局

(43) 国际公布日
2012 年 9 月 27 日 (27.09.2012)



(10) 国际公布号
WO 2012/126411 A3

(51) 国际专利分类号:
H04L 12/10 (2006.01)

(21) 国际申请号: PCT/CN2012/074924

(22) 国际申请日: 2012 年 4 月 28 日 (28.04.2012)

(25) 申请语言: 中文

(26) 公布语言: 中文

(71) 申请人 (对除美国外的所有指定国): 华为技术有限公司 (HUAWEI TECHNOLOGIES CO., LTD.) [CN/CN]; 中国广东省深圳市龙岗区坂田华为总部办公楼, Guangdong 518129 (CN)。

(72) 发明人: 及

(75) 发明人/申请人 (仅对美国): 石操 (SHI, Cao) [CN/CN]; 中国广东省深圳市龙岗区坂田华为总部办公楼, Guangdong 518129 (CN)。何孝月 (HE, Xiaoyue) [CN/CN]; 中国广东省深圳市龙岗区坂田华为总部办公楼, Guangdong 518129 (CN)。

(74) 代理人: 北京同立钧成知识产权代理有限公司 (LEADER PATENT & TRADEMARK FIRM); 中国

北京市海淀区西直门北大街 32 号枫蓝国际 A 座 8F-6, Beijing 100082 (CN)。

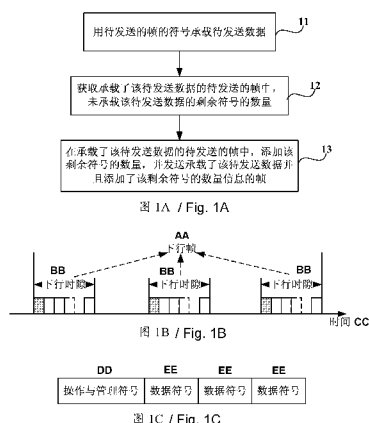
(81) 指定国 (除另有指明, 要求每一种可提供的国家保护): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, 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, ML, MR, NE, SN, TD, TG)。

[见续页]

(54) Title: DIGITAL SUBSCRIBER LINE SIGNAL PROCESSING METHOD, DEVICE AND DIGITAL SUBSCRIBER LINE SYSTEM

(54) 发明名称: 数字用户线的信号处理方法、装置及数字用户线系统



(57) Abstract: Disclosed in the embodiments of the present invention are a digital subscriber line signal processing method, a device and a digital subscriber system. The signal processing method comprising: use symbols of frames to be transmitted to carry data to be transmitted; obtain the number of remaining symbols, said remaining symbols not carrying any data to be transmitted and being located within the frame to be transmitted carrying data to be transmitted; within the frame to be transmitted carrying data to be transmitted, add quantitative information of the remaining symbols and send frames carrying data to be transmitted and having quantitative information of remaining symbols. The embodiments of the present invention, by means of adding quantitative information of remaining symbols not carrying data to be transmitted, informs the receiver of the existence of remaining symbols not carrying data to be transmitted. Thus, processing is not executed on remaining symbols, thereby saving processing power for the TDD DSL system, reducing consumption, and causing the TDD DSL system to be energy efficient.

(57) 摘要: 本发明实施例涉及一种数字用户线的信号处理方法、装置及数字用户线系统, 所述信号处理方法包括: 采用待发送的帧的符号承载待发送数据; 获取承载了所述待发送数据的待发送的帧中, 未承载所述待发送数据的剩余符号的数量; 在承载了所述待发送数据的待发送的帧中, 添加所述剩余符号的数量信息, 并发送承载了所述待发送数据并且添加了所述剩余符号的数量信息的帧。本发明实施例通过在待发送的帧中添加未承载该待发送数据的剩余符号的数量信息, 使得接收方能够获知未承载该待发送数据的剩余符号的信息, 从而不对剩余符号进行处理, 节约了 TDD DSL 系统中信号处理功率, 降低了功耗, 使得 TDD DSL 系统实现了节能。

11 USING SYMBOLS OF FRAME TO BE TRANSMITTED TO CARRY DATA TO BE TRANSMITTED
12 OBTAINING NUMBER OF REMAINING SYMBOLS, SAID REMAINING SYMBOLS NOT CARRYING ANY DATA TO BE TRANSMITTED AND BEING LOCATED WITHIN FRAME TO BE TRANSMITTED CARRYING DATA TO BE TRANSMITTED;
13 WITHIN FRAME TO BE TRANSMITTED CARRYING DATA TO BE TRANSMITTED, ADDING QUANTITATIVE INFORMATION OF REMAINING SYMBOLS AND SENDING FRAMES CARRYING DATA TO BE TRANSMITTED AND HAVING QUANTITATIVE INFORMATION OF REMAINING SYMBOLS.
AA DOWNSTREAM FRAME
BB DOWNSTREAM TIME SLOT
CC TIME
DD OPERATIONS AND MANAGEMENT SYMBOL
EE DATA SYMBOLS

WO 2012/126411 A3

**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:

2013 年 4 月 11 日

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2012/074924**A. CLASSIFICATION OF SUBJECT MATTER**

H04L 12/10 (2006.01) i

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: 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)

CNABS, CNTXT, VEN, CNKI: digital subscriber line, use, indication, DSL, frame, symbol, surplus, free, valid, number, identifier, add

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 101753253 A (HUAWEI TECHNOLOGIES CO., LTD.), 23 June 2010 (23.06.2010), description, paragraphs 25-29	1-15
A	CN 101562900 A (ZTE CORP.), 21 October 2009 (21.10.2009), the whole document	1-15

☐ 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 09 January 2013 (09.01.2013)	Date of mailing of the international search report 07 February 2013 (07.02.2013)
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 ZHU, Tao Telephone No.: (86-10) 62411215

International application No.
PCT/CN2012/074924

Form PCT/ISA/210 (patent family annex) (July 2009)

国际检索报告

国际申请号

PCT/CN2012/074924

A. 主题的分类

H04L 12/10 (2006.01) 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: 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))

CNABS, CNTXT, VEN, CNKI: 数字用户线, 帧, 符号, 剩余, 空闲, 使用, 有效, 数量, 个数, 指示, 增加, DSL, frame, symbol, surplus, free, valid, number, identifier, 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
X	CN101753253A(华为技术有限公司), 23.6 月 2010(23.06.2010), 说明书第 25-29 段	1-15
A	CN101562900A(中兴通讯股份有限公司), 21.10 月 2009(21.10.2009), 全文	1-15

☐ 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
09.1 月 2013(09.01.2013)国际检索报告邮寄日期
07.2 月 2013 (07.02.2013)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

朱陶
电话号码: (86-10) 62411215

国际检索报告

关于同族专利的信息

国际申请号

PCT/CN2012/074924

检索报告中引用的 专利文件	公布日期	同族专利	公布日期
CN101753253A	23.06.2010	WO2010063231A1	10.06.2010
CN101562900A	21.10.2009	CN101562900B	30.11.2011