

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference TM2-0445PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2018/043480	International filing date (<i>day/month/year</i>) 24 July 2018 (24.07.2018)	(Earliest) Priority Date (<i>day/month/year</i>) 03 August 2017 (03.08.2017)
Applicant T-MOBILE USA, INC.		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

the international application in the language in which it was filed

a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. **Certain claims were found unsearchable** (See Box No. II)

3. **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

b. none of the figures is to be published with the abstract.

A. CLASSIFICATION OF SUBJECT MATTER**H04L 29/06(2006.01)i, H04L 29/12(2006.01)i, H04M 7/00(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)

H04L 29/06; G01R 31/08; H04L 12/28; H04L 12/56; H04L 12/66; H04M 3/42; H04L 29/12; H04M 7/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: routing, voice, mailbox, header, modification, identifier, address, call, forwarding, and similar terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2009-0168986 A1 (JAMES JACKSON et al.) 02 July 2009 See paragraphs [0009], [0023], [0052]; claims 1, 4-5; and figures 1, 6.	1-7,10-17
A		8-9,18-20
Y	US 2011-0103372 A1 (ALEX SHATSKY et al.) 05 May 2011 See paragraphs [0033], [0057]; claims 1, 20; and figure 2.	1-7,10-17
A	US 6611498 B1 (THOMAS E. BAKER et al.) 26 August 2003 See column 5, line 56 - column 12, line 12; and figures 1-4.	1-20
A	US 2006-0083242 A1 (OLLI M. PULKKINEN) 20 April 2006 See paragraphs [0032]-[0046]; and figures 1-5.	1-20
A	US 2007-0121602 A1 (SAM K. SIN et al.) 31 May 2007 See paragraphs [0014]-[0036]; and figures 1-3.	1-20

 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

05 December 2018 (05.12.2018)

Date of mailing of the international search report

05 December 2018 (05.12.2018)

Name and mailing address of the ISA/KR

International Application Division

Korean Intellectual Property Office

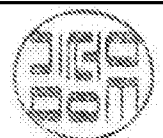
189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea

Facsimile No. +82-42-481-8578

Authorized officer

KIM, Seong Woo

Telephone No. +82-42-481-3348



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2018/043480

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009-0168986 A1	02/07/2009	US 8879545 B2	04/11/2014
US 2011-0103372 A1	05/05/2011	CA 2779998 A1	12/05/2011
		CA 2779998 C	22/03/2016
		EP 2497245 A1	12/09/2012
		US 2013-0230042 A1	05/09/2013
		US 8416780 B2	09/04/2013
		WO 2011-056750 A1	12/05/2011
US 6611498 B1	26/08/2003	AU 1062499 A	12/04/1999
		AU 3792997 A	21/01/1998
		AU 752622 B2	26/09/2002
		AU 753269 B2	10/10/2002
		AU 755614 B2	19/12/2002
		AU 9582798 A	12/04/1999
		AU 9582998 A	12/04/1999
		AU 9583198 A	12/04/1999
		AU 9583298 A	12/04/1999
		AU 9583398 A	12/04/1999
		AU 9583598 A	12/04/1999
		AU 9583698 A	12/04/1999
		AU 9584098 A	12/04/1999
		AU 9666398 A	12/04/1999
		AU 9667198 A	12/04/1999
		AU 9667298 A	12/04/1999
		AU 9667598 A	12/04/1999
		AU 9667698 A	12/04/1999
		AU 9667898 A	12/04/1999
		AU 9667998 A	12/04/1999
		AU 9668098 A	12/04/1999
		AU 9668298 A	03/05/1999
		AU 9777098 A	12/04/1999
		AU 9777298 A	12/04/1999
		AU 9777398 A	12/04/1999
		BR 9814046 A	02/01/2002
		BR 9814049 A	20/11/2001
		BR 9814050 A	13/11/2001
		CA 2304543 A1	22/04/1999
		CA 2304554 A1	01/04/1999
		CA 2304619 A1	01/04/1999
		EP 1015970 A2	05/07/2000
		EP 1015970 A4	30/07/2003
		EP 1015986 A1	05/07/2000
		EP 1015986 A4	23/07/2003
		EP 1015995 A1	05/07/2000
		EP 1015995 A4	30/07/2003
		JP 2003-522342 A	22/07/2003
		JP 2003-525475 A	26/08/2003
		JP 2003-526126 A	02/09/2003

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2018/043480

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		US 05610915 A	11/03/1997
		US 05825769 A	20/10/1998
		US 06032184 A	29/02/2000
		US 06115040 A	05/09/2000
		US 06141777 A	31/10/2000
		US 2001-0052013 A1	13/12/2001
		US 2002-0054587 A1	09/05/2002
		US 2002-0087383 A1	04/07/2002
		US 2003-0041263 A1	27/02/2003
		US 2003-0191970 A1	09/10/2003
		US 2004-0019808 A1	29/01/2004
		US 2004-0193512 A1	30/09/2004
		US 2005-0114712 A1	26/05/2005
		US 2005-0172018 A1	04/08/2005
		US 2005-0210296 A1	22/09/2005
		US 2005-0216421 A1	29/09/2005
		US 2006-0098583 A1	11/05/2006
		US 2006-0129499 A1	15/06/2006
		US 2010-0024012 A1	28/01/2010
		US 2013-0111576 A1	02/05/2013
		US 6377993 B1	23/04/2002
		US 6381644 B2	30/04/2002
		US 6385644 B1	07/05/2002
		US 6470386 B1	22/10/2002
		US 6473407 B1	29/10/2002
		US 6490620 B1	03/12/2002
		US 6515968 B1	04/02/2003
		US 6574661 B1	03/06/2003
		US 6587836 B1	01/07/2003
		US 6598167 B2	22/07/2003
		US 6606708 B1	12/08/2003
		US 6615258 B1	02/09/2003
		US 6631402 B1	07/10/2003
		US 6714979 B1	30/03/2004
		US 6745229 B1	01/06/2004
		US 6763376 B1	13/07/2004
		US 6859783 B2	22/02/2005
		US 6956845 B2	18/10/2005
		US 6968571 B2	22/11/2005
		US 7058600 B1	06/06/2006
		US 7114083 B2	26/09/2006
		US 7225249 B1	29/05/2007
		US 7236486 B2	26/06/2007
		US 7447736 B2	04/11/2008
		US 7814533 B2	12/10/2010
		US 8073777 B2	06/12/2011
		US 8479259 B2	02/07/2013
		US 8495724 B2	23/07/2013
		US 8935772 B2	13/01/2015
		US 9197599 B1	24/11/2015

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2018/043480

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		WO 98-00784 A1	08/01/1998
		WO 99-15950 A1	01/04/1999
		WO 99-15960 A2	01/04/1999
		WO 99-15960 A3	20/05/1999
		WO 99-15974 A1	01/04/1999
		WO 99-15975 A1	01/04/1999
		WO 99-15977 A1	01/04/1999
		WO 99-15978 A1	01/04/1999
		WO 99-15979 A1	01/04/1999
		WO 99-15979 A9	14/10/1999
		WO 99-15984 A1	01/04/1999
		WO 99-15988 A2	01/04/1999
		WO 99-15988 A3	28/10/1999
		WO 99-15989 A1	01/04/1999
		WO 99-15989 A9	26/08/1999
		WO 99-15996 A2	01/04/1999
		WO 99-15996 A3	20/05/1999
		WO 99-16002 A1	01/04/1999
		WO 99-16099 A2	01/04/1999
		WO 99-16099 A3	20/05/1999
		WO 99-16198 A1	01/04/1999
		WO 99-16202 A2	01/04/1999
		WO 99-16203 A2	01/04/1999
		WO 99-16203 A3	07/10/1999
		WO 99-16206 A1	01/04/1999
		WO 99-16207 A1	01/04/1999
		WO 99-16218 A1	01/04/1999
		WO 99-16230 A1	01/04/1999
		WO 99-19803 A1	22/04/1999
US 2006-0083242 A1	20/04/2006	EP 1810480 A1	25/07/2007
		WO 2006-043139 A1	27/04/2006
US 2007-0121602 A1	31/05/2007	US 7907718 B2	15/03/2011