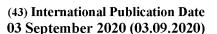
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(54) Title: WIRELESS DEVICE MOBILITY BETWEEN WIRELESS COMMUNICATION NETWORKS

SUSPENDING A CONNECTION WITH THE FIRST ACCESS NETWORK AND ENTERING AN INACTIVE STATE

1100

RECEIVING CONTROL SIGNALING INDICATING A VALUE OF A TIMER
1105

WHILE THE CONNECTION WITH THE FIRST ACCESS NETWORK IS SUSPENDED AND THE WIRELESS DEVICE IS IN THE INACTIVE STATE, CAMPING IN AN AREA OF THE SECOND WIRELESS COMMUNICATION NETWORK THAT IS INCLUDED IN A NOTIFICATION AREA WITHIN WHICH THE WIRELESS DEVICE IS ALLOWED TO MOVE WITHOUT NOTIFYING EITHER OF THE FIRST AND SECOND WIRELESS COMMUNICATION NETWORKS

1110

UPON CAMPING IN THE AREA OF THE SECOND WIRELESS COMMUNICATION NETWORK, STARTING A TIMER
1120

PRESPONSIVE TO EXPIRY OF THE FIRST AND SECOND WIRELESS COMMUNICATION NETWORK, STARTING A TIMER
1120

RESPONSIVE TO EXPIRY OF THE FIRST AND SECOND WIRELESS COMMUNICATION NETWORK SIGNALING INDICATION THE SECOND ACCESS NETWORK SIGNALING INDICATING THAT THE WIRELESS DEVICE IS IN THE AREA OF THE SECOND WIRELESS COMMUNICATION NETWORK OR THAT THE WIRELESS DEVICE REQUESTS A CONNECTION TO THE SECOND ACCESS NETWORK
1130

FIGURE 11

(57) **Abstract:** A wireless device (16) suspends a connection (18) with a first access network (12A) and enters an inactive state. While the connection (18) with the first access network (12A) is suspended and the wireless device (16) is in the inactive state, the wireless device (16) camps in a specific area (24B) of a second wireless communication network (10B) that is included in a notification area (24) within which the wireless device (16) is allowed to move without notifying either the second wireless communication network (10B) or a first wireless communication network (10A) that includes the first access network (12A). Upon camping in the specific area (24B), the wireless device (16) starts a timer (40). Responsive to expiry of the timer (40), the wireless device (16) switches from the inactive state to an idle state and/or transmits to the second access network (12B) signaling (26) indicating that the wireless device (16) is in the specific area (24B) or that the wireless device (16) requests a connection to the second access network (12B).

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C. DOCUMENTS CONSIDERED TO BE RELEVANT					
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.			
A	W0 2018/019362 A1 (ERICSSON TELEFON AB L M [SE]) 1 February 2018 (2018-02-01) page 6, line 20 - line 32 page 7, line 31 - line 36 page 12, line 4 - line 24 page 14, line 1 - line 11 page 21, line 11 - line 17 page 22, line 21 - line 22	1-33			
A	WO 2018/119119 A1 (INTEL IP CORP [US]) 28 June 2018 (2018-06-28) page 3, line 10 - line 22 claim 1	1-33			
Α	WO 2016/008538 A1 (HUAWEI TECH CO LTD [CN]; KELA PETTERI [SE] ET AL.) 21 January 2016 (2016-01-21) page 5, line 7 - line 17	1-33			

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INTERNATIONAL SEARCH REPORT

International application No
PCT/SE2020/050219

-	ation). DOCUMENTS CONSIDERED TO BE RELEVANT	T
ategory*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
4	EP 2 566 252 A1 (NEC CORP [JP]; NTT DOCOMO INC [JP]) 6 March 2013 (2013-03-06) paragraph [0008] paragraph [0029] - paragraph [0032]	1-33
	WO 2019/004692 A1 (LG ELECTRONICS INC [KR]) 3 January 2019 (2019-01-03) paragraph [0082] - paragraph [0091]	1-33

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/SE2020/050219

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2018019362 A1	01-02-2018	CN 109792705 A EP 3292719 A1 JP 2019527965 A US 2018242271 A1 US 2019110269 A1 US 2020059883 A1 WO 2018019362 A1	21-05-2019 14-03-2018 03-10-2019 23-08-2018 11-04-2019 20-02-2020 01-02-2018
WO 2018119119 A1	28-06-2018	US 2019320483 A1 WO 2018119119 A1	17-10-2019 28-06-2018
WO 2016008538 A1	21-01-2016	BR 112017000996 A2 CN 106538033 A EP 3155861 A1 EP 3518566 A1 US 2017127272 A1 WO 2016008538 A1	24-07-2018 22-03-2017 19-04-2017 31-07-2019 04-05-2017 21-01-2016
EP 2566252 A1	06-03-2013	AU 2011246318 B2 BR 112012027567 A2 CN 102972067 A CN 106879064 A EP 2566252 A1 EP 3598810 A1 JP 5835213 B2 JP 6008156 B2 JP 6278084 B2 JP 6551554 B2 JP 2016040942 A JP 2017028722 A JP 2018082492 A JP 2019161669 A JP W02011136053 A1 KR 20130031273 A KR 20140129353 A KR 20170018082 A KR 20170018082 A KR 20180015763 A RU 2012150841 A RU 2015105196 A US 2013095830 A1 US 2014113627 A1 US 2015181510 A1 US 2015319736 A1 US 2015181510 A1	15-05-2014 02-08-2016 13-03-2013 20-06-2017 06-03-2013 22-01-2020 24-12-2015 19-10-2016 14-02-2018 31-07-2019 24-03-2016 02-02-2017 24-05-2018 19-09-2019 18-07-2013 28-03-2013 06-11-2014 15-02-2017 13-02-2018 20-06-2014 27-06-2015 18-04-2014 27-06-2015 18-04-2014 27-06-2015 05-11-2015 27-07-2017 14-06-2018 20-06-2019 19-03-2020 03-11-2011
WO 2019004692 A1	03-01-2019	EP 3643095 A1 US 2020120476 A1	29-04-2020 16-04-2020