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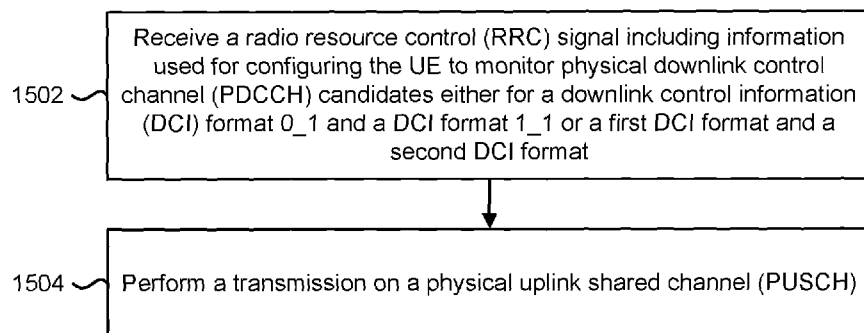
(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, 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, SA, 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.

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(54) **Title:** USER EQUIPMENTS, BASE STATIONS AND METHODS FOR PHYSICAL DOWNLINK CONTROL CHANNEL MONITORING IN DOWNLINK

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**FIG. 15**

(57) **Abstract:** A user equipment (UE) is described. The UE includes receiving circuitry configured to receive a radio resource control (RRC) signal including information used for configuring the UE to monitor physical downlink control channel (PDCCH) candidates either for a downlink control information (DCI) format 0\_1 and a DCI format 1\_1 or a first DCI format and a second DCI format. The UE also includes transmitting circuitry configured to perform a transmission on a physical uplink shared channel (PUSCH). In a case that the PUSCH is scheduled by using the second DCI format, a first hybrid automatic repeat request-acknowledgment (HARQ-ACK) and a second HARQ-ACK are multiplexed on the PUSCH. The number of resources for the first HARQ-ACK and the number of resources for the second HARQ-ACK are respectively determined.



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<p>A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - H04W 72/04; H04L 1/18 (2019.01) CPC - H04W 72/042; H04L 1/1812; H04L 5/0055; H04W 72/0413; H04L 1/1812</p>												
<p>According to International Patent Classification (IPC) or to both national classification and IPC</p>												
<p>B. FIELDS SEARCHED</p>												
<p>Minimum documentation searched (classification system followed by classification symbols) See Search History Document</p>												
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<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p>												
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
X	WO 2017/026324 A1 (SHARP KABUSHIKI KAISHA) 16 February 2017 (16.02.2017) entire document, especially: para [0008], [0032], [0042]-[0044], [0102]-[0104]	1-8										
A	US 2013/0034073 A1 (Aiba et al.) 07 February 2013 (07.02.2013) entire document	1-8										
A	US 2016/0249338 A1 (LG ELECTRONICS INC.) 25 August 2016 (25.08.2016) entire document	1-8										
A	US 2011/0228863 A1 (Papasakellariou et al.) 22 September 2011 (22.09.2011) entire document	1-8										
A	US 2017/0332374 A1 (TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)) 26 November 2017 (26.11.2017) entire document	1-8										
<p><input type="checkbox"/> Further documents are listed in the continuation of Box C.      <input type="checkbox"/> See patent family annex.</p>												
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