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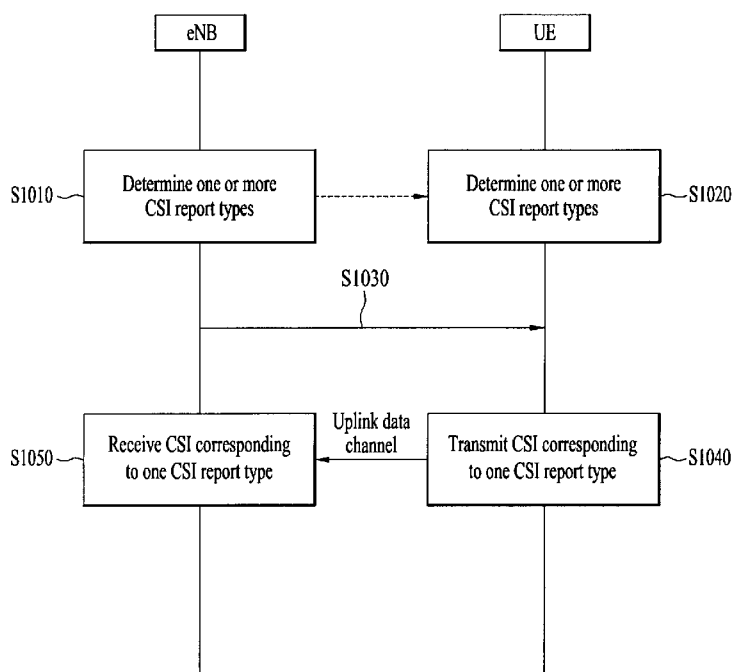
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[Continued on next page]

(54) **Title:** METHOD OF TRANSMITTING AND RECEIVING CHANNEL STATUS INFORMATION ON MULTI-CELL OPERATION IN A WIRELESS COMMUNICATION SYSTEM AND APPARATUS FOR THE SAME

FIG. 10



(57) **Abstract:** The present invention relates to a wireless communication system. And, a method of transmitting and receiving channel status information on a multi-cell operation in a wireless communication system and apparatus for the same are disclosed. The present invention may include determining a report type of channel status information on multi-cell operation and transmitting/receiving the channel status information corresponding to the determined channel status information report type via uplink data channel.



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,
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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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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: CSI, report, multi-cell, uplink, PDCCH, PUSCH

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010-0273514 A1 (KOO JA HO et al.) 28 October 2010 See abstract; paragraphs [41],[52],[57],[79]; claim 1.	1-15
A	R1-106355, "PUCCH2-1 LTE-A MIMO feedback performance evaluation," 3GPP TSG-RAN WG1 #63, 19 November 2010 See sections 2 and 3.	1-15
A	R1-110337, "CSI measurement reference," 3GPP TSG-RAN WG1 #63bis, 21 January 2011 See section 2.	1-15
A	R2-106465, "Physical layer parameters to be configured by RRC," 3GPP TSG-RAN WG2 #72, 19 November 2010 See section "CSI feedback reporting for TM9" (pages 2-3).	1-15



Further documents are listed in the continuation of Box C.



See patent family annex.

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Information on patent family members

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datePatent family
member(s)Publication
date

US 2010-0273514 A1

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CN 102342032 A

01.02.2012

KR 10-2010-0100571 A

15.09.2010

KR 10-2010-0100578 A

15.09.2010

US 2012-0021738 A1

26.01.2012

WO 2010-101352 A2

10.09.2010

WO 2010-101352 A3

10.09.2010

WO 2010-101431 A2

10.09.2010

WO 2010-101431 A3

02.12.2010

WO 2010-101431 A8

10.09.2010