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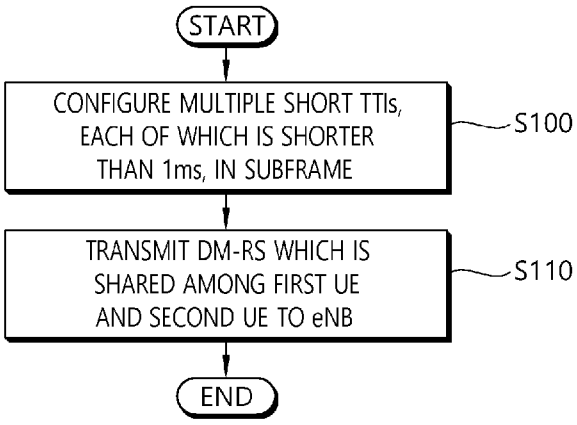
(54) Title: METHOD AND APPARATUS FOR SHARING DEMODULATION REFERENCE SIGNAL FOR SHORT TTI IN WIRELESS COMMUNICATION SYSTEM



(57) Abstract: Multiple short transmission time intervals (TTIs), each of which is shorter than 1ms, may be configured in a subframe. A user equipment (UE) may transmit a demodulation reference signal (DM-RS) which is shared among different UEs to an eNodeB (eNB). In this case, the DM-RS may be transmitted in a reference TTI, which is one short TTI among the multiple short TTIs, and the reference TTI may be indicated by downlink control information (DCI) received from the eNB. Alternatively, a UE may transmit the DM-RS which is shared among different short TTIs to the eNB.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

H04L 5/00(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 5/00; H04L 25/02

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: short TTI (transmission time interval), DM-RS (demodulation reference signal), PDSCH (physical downlink shared channel), subframe, and share

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	LENOVO, `Consideration on TTI shortening for DL`, R1-161017, 3GPP TSG RAN WG1 Meeting #84, St. Julian`s, Malta, 06 February 2016 (http://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_84/Docs/) See sections 2, 3.2.	1,8-13,15
A		2-7,14
Y	WO 2015-076712 A1 (TELEFONAKTIEBOLAGET L M ERICSSON (PUBL)) 28 May 2015 See page 7, lines 7-30; page 8, line 31 - page 9, line 2; and claim 1.	1,8-10
Y	LG ELECTRONICS, `Discussion on PUSCH transmission with TTI shortening`, R1-160655, 3GPP TSG RAN WG1 Meeting #84, St. Julian`s, Malta, 06 February 2016 (http://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_84/Docs/) See section 2.1; and figure 1.	11-13,15
A	LG ELECTRONICS, `Discussion on DMRS based PDCCH transmission with TTI shortening`, R1-160651, 3GPP TSG RAN WG1 Meeting #84, St. Julian`s, Malta, 06 February 2016 (http://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_84/Docs/) See section 2.1.	1-15

☒ 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
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"P" document published prior to the international filing date but later than the priority date claimed
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"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	Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

International application No.
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	INTEL CORPORATION, `Aspects to consider for DL transmission of TTI shortening`, R1-160436, 3GPP TSG RAN WG1 Meeting #84, St. Julian`s, Malta, 06 February 2016 (http://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_84/Docs/) See sections 2.2.2, 2.3, 3.	1-15

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2015-076712 A1	28/05/2015	US 2016-285605 A1	29/09/2016