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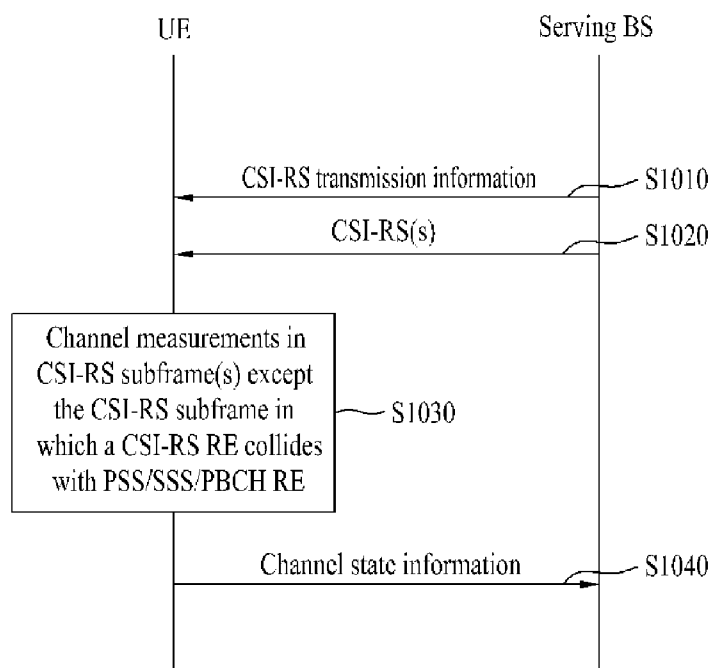
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[Continued on next page]

(54) Title: METHOD AND BASE STATION FOR RECEIVING REFERENCE SIGNAL, AND METHOD AND USER EQUIPMENT FOR RECEIVING REFERENCE SIGNAL

[Fig. 18]



(57) Abstract: A base station does not transmit any reference signal (RS) for channel measurement in a subframe in which transmission of an RS collides with transmission of a synchronization signal or a broadcast signal or in a resource block including the synchronization signal or the broadcast signal in the subframe. A user equipment assumes that any RS for channel measurement is not transmitted in a subframe or in a resource block when transmission of an RS collides with transmission of a synchronization signal or a broadcast signal in the subframe or in the resource block.



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B. FIELDS SEARCHED

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

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eKOMPASS(KIPO internal) & Keywords: reference signal (RS), resource, collision, subframe, 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.
X	US 2010-0027483 A1 (OFUJI, YOSHIKI et al.) 04 February 2010 See the abstract and claims 1,5,10,12,13,15.	1-10
A	SAJID HUSSAIN, `Dynamic Radio Resource Management in 3GPP LTE`, Blekinge Institute of Technology, January 2009 See chapters 2-4.	1-10
A	US 2010-0008282 A1 (BHATTAD, KAPIL et al.) 14 January 2010 See the abstract and claims 1, 6.	1-10
A	US 2010-0054161 A1 (MONTJOJO, JUAN et al.) 04 March 2010 See the abstract and claims 1-15.	1-10



Further documents are listed in the continuation of Box C.



See patent family annex.

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INTERNATIONAL SEARCH REPORT

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010-0027483 A1	04.02.2010	CN 101507311 A	12.08.2009
		EP 2037601 A1	18.03.2009
		JP 2008-028977 A	07.02.2008
		KR 10-2009-0033357 A	02.04.2009
		MX 2008016057 A	25.03.2009
		RU 2009101079 A	27.07.2010
		TW 200810411 A	16.02.2008
		WO 2007-148614 A1	27.12.2007
US 2010-0008282 A1	14.01.2010	AU 2009-268440 A1	14.01.2010
		CA 2729957 A1	14.01.2010
		CN 102090128 A	08.06.2011
		EP 2308264 A2	13.04.2011
		EP 2328381 A2	01.06.2011
		EP 2328381 A3	22.06.2011
		EP 2337417 A1	22.06.2011
		KR 10-2011-0036110 A	06.04.2011
		MX 2011000272 A	22.02.2011
		WO 2010-006285 A2	14.01.2010
		WO 2010-006285 A3	27.05.2010
US 2010-0054161 A1	04.03.2010	AU 2009-285737 A1	04.03.2010
		CA 2734262 A1	04.03.2010
		CN 102132598 A	20.07.2011
		EP 2324654 A1	25.05.2011
		IL 211108 D0	28.04.2011
		KR 10-2011-0083608 A	20.07.2011
		TW 201012278 A	16.03.2010
		WO 2010-025279 A1	04.03.2010