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[Continued on next page]

(54) **Title:** SIGNALING SCHEME FOR COORDINATED TRANSMISSIONS

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PCT/US2013/031568

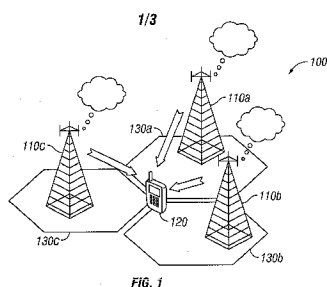


FIG. 1

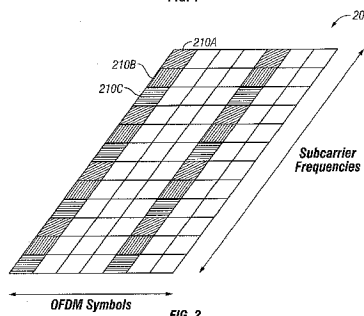


FIG. 2

(57) **Abstract:** A method of signal transmission in a wireless communications network is disclosed. The method includes identifying a particular set of transmission points that can be utilized to transmit data to a mobile device, constructing an indexed list of the particular set of transmission points, and transmitting the indexed list to the mobile device. The method further includes selecting at least one transmission point from the particular set of transmission points to transmit data to the mobile device in a particular transmission, and transmitting to the mobile device an indicator of the index corresponding to the at least one transmission point.

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *of inventorship (Rule 4.17(iv))*

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

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13 March 2014

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/031568

A. CLASSIFICATION OF SUBJECT MATTER

INV. H04W72/04

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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)

H04W H04B

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SAMSUNG: "Design Considerations for COMP Joint Transmission", 3GPP DRAFT; R1-091868 DESIGN CONSIDERATIONS FOR COMP JOINT TRANSMISSION, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, no. San Francisco, USA; 20090428, 28 April 2009 (2009-04-28), XP050339364, Section 2.2 ----- -/--	1,7



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

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"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

22 January 2014

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Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/031568

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PANASONIC: "Required Information at the UE in CoMP", 3GPP DRAFT; R1-092530, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, no. Los Angeles, USA; 20090623, 23 June 2009 (2009-06-23), XP050351035, Sections 2, 3 -----	1,2,6-8
X	US 2011/038310 A1 (CHMIEL MIESZKO [PL] ET AL) 17 February 2011 (2011-02-17) paragraphs [0083], [0084], [0101], [0106] figure 3 -----	1,3,5,7, 9,11
X	INTEL CORPORATION: "Downlink control signaling for DL CoMP", 3GPP DRAFT; R1-121517 DL COMP CONTROL SIGNALLING, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, vol. RAN WG1, no. Jeju, Korea; 20120326 - 20120330, 20 March 2012 (2012-03-20), XP050599790, Section 2 -----	1,4,7,10
X,P	FUJITSU: "Discussion of DL CoMP control signaling", 3GPP DRAFT; R1-122081 DISCUSSION ON DL COMP CONTROL SIGNALLING, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, vol. RAN WG1, no. Prague, Czech Republic; 20120521 - 20120525, 12 May 2012 (2012-05-12), XP050600370, the whole document -----	1-11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/031568

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-11

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-11

identifying a particular set of transmission points that can be utilized to transmit data to a mobile device; constructing an indexed list of the particular set of transmission points; transmitting the indexed list to the mobile device; selecting at least one transmission point from the particular set of transmission points to transmit data to the mobile device in a particular transmission; and transmitting to the mobile device an indicator of the index corresponding to the at least one transmission point.

2. claims: 12-21

determining whether the transmission point is located in a serving cell of the mobile device; and transmitting an indicator of a signal pattern of the particular transmission to the mobile device if the transmission point is not located in the serving cell of the mobile device.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2013/031568

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
US 2011038310	A1	17-02-2011	CN 102549965 A	04-07-2012
			EP 2484046 A1	08-08-2012
			US 2011038310 A1	17-02-2011
			WO 2011039625 A1	07-04-2011
