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13/786,884 6 March 2013 (06.03.2013) US(71) Applicant: **QUALCOMM INCORPORATED** [US/US];
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DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
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MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
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KM, ML, MR, NE, SN, TD, TG).**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))*

[Continued on next page]

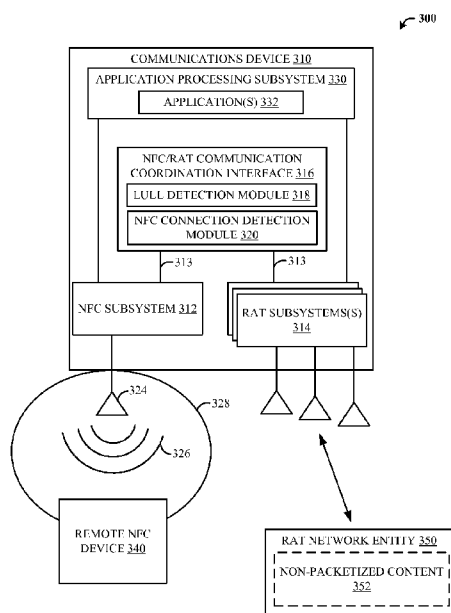
(54) Title: METHODS AND APPARATUS FOR COORDINATING COMMUNICATIONS BETWEEN A NFC RADIO AND
OTHER COEXISTING RAT RADIOS

FIG. 3

(57) Abstract: A method, an apparatus, and a computer program product for wireless communication are provided in connection with reducing interference between NFC communications and other coexisting RAT based communications. In one example, a communications device may include an interface that is equipped to detect that a NFC communication and a coexisting RAT communication are to occur within a threshold time of each other, determine whether the communications will interfere with each other beyond a threshold level of interference, and align timing for the NFC communication and the RAT communication upon a determination that the communications will not interfere with each other beyond the threshold level of interference. In another example, a communications device may include an interface that is equipped to detect that a NFC subsystem has established a NFC connection, and provide a message to another RAT subsystem to establish a link or perform a handover.

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6 November 2014

- *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))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/021112

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04W56/00
ADD.

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 H04M

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)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008/309490 A1 (HONKANEN MAURI [FI] ET AL) 18 December 2008 (2008-12-18) abstract paragraphs [0001] - [0011] paragraphs [0050] - [0053] paragraphs [0064] - [0074] figure 3a claims	1-8, 11-18, 21-28, 31-38
A	US 2011/122829 A1 (ZETTERMAN TOMMI J [FI] ET AL) 26 May 2011 (2011-05-26) the whole document ----- -/--	1-8, 11-18, 21-28, 31-38

☒ 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

10 September 2014

Date of mailing of the international search report

18/09/2014

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

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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	US 2009/180451 A1 (ALPERT YARON [IL] ET AL) 16 July 2009 (2009-07-16) the whole document	1-8, 11-18, 21-28, 31-38
X	US 2006/223536 A1 (CHIA SI TAK S [US] CHIA SI TAK STANLEY [US]) 5 October 2006 (2006-10-05) abstract paragraph [0006] paragraphs [0016] - [0024] figures claims	9,10,19, 20,29, 30,39,40
X	EP 1 633 104 A1 (SONY CORP [JP]) 8 March 2006 (2006-03-08) abstract paragraph [0001] paragraph [0011] paragraphs [0021] - [0023] paragraph [0042] paragraph [0053] paragraph [0068] paragraphs [0099] - [0129] figures 15,16	9,10,19, 20,29, 30,39,40
X	WO 2013/015571 A2 (LG ELECTRONICS INC [KR]; SONG WONGYU [KR]) 31 January 2013 (2013-01-31) the whole document & EP 2 739 116 A2 (LG ELECTRONICS INC [KR]) 4 June 2014 (2014-06-04) abstract paragraphs [0037] - [0057] figures 1-6	9,10,19, 20,29, 30,39,40

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/021112

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.:

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: 1-8, 11-18, 21-28, 31-38

Aligning timing of NFC communications with another RAT communication

2. claims: 9, 10, 19, 20, 29, 30, 39, 40

Selection of a RAT for concurrent communication with a NFC

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2014/021112

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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