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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
13/590,423 08/21/2012 Aleksandar Modrag Tasic 121973 9482

23696 7590 12/26/2014
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Table with 1 column: EXAMINER

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Table with 2 columns: ART UNIT, PAPER NUMBER

2631

Table with 2 columns: NOTIFICATION DATE, DELIVERY MODE

12/26/2014

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.

2. The Amendment filed on 10/30/2014 has been entered. Claims 1-20 are still pending in this Office action.

Response to Arguments

3. Applicant's arguments filed 10/30/2014 have been fully considered but they are not persuasive for the following reasons:

In response to Applicants' arguments on page 7 that **Regarding independent claims 1 and 17**, Applicant's independent claims 1 and 17 recite, *inter alia*, "[a first amplifier stage configured to ... amplify/amplifying ... with a first amplifier stage] ... when the first amplifier stage is enabled ... and [a second amplifier stage configured to ... amplify/amplifying ... with a second amplifier stage] ... when the second amplifier stage is enabled," which is not disclosed in Kaukovuori".

The Examiner's response is that Kaukovuori FIG. 15 **embodiment** discloses that RFIC1 amplifier and RFIC2 amplifier both are inherently enabled {Emphasis Added} (see further in column 10 lines 22-46).

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In response to Applicants' arguments on page 8 that Kaukovuori discloses: one potential method of receiving non-contiguous carrier aggregation signals is to receive separate clusters of component carriers in separate receiver chains, each having a LO signal of its own. This is depicted in FIG. 15, where Cluster 1 and Cluster 2 are each handled by a separate respective receiver chain, as shown in FIG. 15. (Kaukovuori, col.10, Ins. 23-28; emphasis added).

The Examiner's response is that Kaukovuori FIG. 15 **embodiment**, indeed, teaches method of receiving non-contiguous carrier aggregation signals is to receive separate clusters of component carriers in separate receiver chains, each having a LO signal of its own. FIG. 15 discloses a Radio Frequency Integrated Circuit (RFIC1) 1 including a first amplifier stage LNA, corresponding to the claimed first amplifier stage, to provide a first output RF signal (corresponding to the claimed first output RF signal, to a digital data path (corresponding to the claimed first load circuit). Furthermore, FIG. 15 discloses a Radio Frequency Integrated Circuit (RFIC2) 2 including a second amplifier stage LNA, corresponding to the claimed second amplifier stage, to provide a second output RF signal (corresponding to the claimed second output RF signal, to a different digital data path (corresponding to the claimed second load circuit). In column 10 lines 22-30, each separate received cluster (e.g. clusters 1 and 2) includes component carries that correspond to the claimed at least a first carrier of the multiple carrier and to the claimed at least a second carrier of the multiple carrier.

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In response to Applicants' arguments on page 8 that when the clusters have unequal bandwidths, the choice of bandwidth (BW) setups for both receiver chains may be performed in order to reconfigure the receiver such that receiver performance is optimal. Typically, the first branch may be configured in a first mode to have a first bandpass filter bandwidth to give first bandpass filtered inphase and quadrature components, and may be configured in a second mode to have a first lowpass filter bandwidth to give first lowpass filtered inphase and quadrature components. In the first mode, a second branch may be configured, for example as shown in FIG. 24 within the dashed lines, and for example as shown in FIG. 10 or FIG. 11, to have a second bandpass filter bandwidth, different from the first bandpass filter bandwidth, to give second bandpass filtered inphase and quadrature components. In the second mode, the first branch may be used as a conventional DCR receiver, for example to receive single carrier or contiguous carrier signals, and the second branch, also referred to as an additional branch, may be not used, for example by being disconnected or turned off. (Kaukovuori, col. 13, lns. 28-46; emphasis added).

The Examiner's response is that, as recited in last Office action, Kaukovuori FIG. 15 **embodiment** the two clusters are each received with different bandwidth filter (see column 10, lines 22-53). Kaukovuori foregoing disclosure teaches the claimed features "at least a first carrier of the multiple carrier and to the claimed at least a second carrier of the multiple carrier". Applicants' arguments using FIG. 10 FIG. 11 and FIG. 24 are irrelevant since those figures represent different embodiments, which the current rejection is not relied on, in Kaukovuori teachings.

In response to Applicants' arguments on page 9 that

35 U.S.C. § 103(a) Obviousness Rejections NOTE: The rejection of claim 19 in the Office Action appears to contain a typographical error. Specifically, the Office Action rejected claims 1, 11, 12,

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14 and 17 under 35 U.S.C. § 102 based on a newly cited reference to Kaukovuori, however, the Office Action appears, in error, to continue to recite Hirose, cited in the previous office action, in rejecting claim 19. Accordingly, Applicant assumes the Examiner meant to also reject claim 19 based on the newly cited reference to Kaukovuori.

The Examiner's response is that the rejection did not contain any typographical error as argued by Applicants. On the contrary, the rejection recites the correct Kaukovuori reference for claim 19 under 35 U.S.C. 103(a) obviousness rejection.

In response to Applicants' arguments on page 10 that regarding independent claim 19, Applicant's independent claim 19 includes claim elements not taught or suggested in the cited reference. Applicant's independent claim 19 recites, *inter alia*, "a first means for amplifying configured to amplify ... when the first means for amplifying is enabled ... and a second means for amplifying configured to amplify ... when the second means for amplifying is enabled." Applicant respectfully asserts that Kaukovuori does not teach or suggest Applicant's invention as presently claimed in independent claim 19."

The Examiner's response is that using the same discussion as recited above and repeated here, Kaukovuori FIG. 15 **embodiment** discloses that RFIC1 amplifier and RFIC2 amplifier both are inherently enabled {Emphasis Added} (see further in column 10 lines 22-46).

In response to Applicants' arguments on pages 10-11 that **Finality of Next Office Action Precluded**. Applicant has traversed the rejection of claims 1, 11, 12, 14, 17 and 19 by argument

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and not amendment. Therefore, the finality of the next office action would be improper as Applicant is entitled to an examination on the merits and to amend as a matter of right.

The Examiner's response is that although Applicants traversed the rejection of claims 1, 11-12, 14, 17 and 19 by argument and not amendment, however, Applicant's arguments are not persuasive for the reasons as discussed above. ***Since the Examiner maintained the rejection of claims 1, 11-12, 14, 17 and 19 using the same arguments in the last Office action, this Office action is made final.***

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 11-12, 14 and 17 are rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by Kaukovuori et al. U.S. Patent 8,442,473.

Regarding claim 1, Kaukovuori et al. discloses an apparatus (FIG. 15 embodiment) comprising:

a first amplifier stage configured to receive and amplify an input radio frequency (RF) signal and provide a first output RF signal to a first load circuit when the first

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amplifier stage is enabled, the input RF signal employing carrier aggregation comprising transmissions sent on multiple carriers at different frequencies to a wireless device, the first output RF signal including at least a first carrier of the multiple carriers (Kaukovuori et al. teaches **a method of receiving data** transmitted via a combination of at least a plurality of radio frequency signals **using carrier aggregation** (see column 2 lines 44-49). FIG. 15 discloses a Radio Frequency Integrated Circuit (RFIC1) 1 including first amplifier stage LNA to provide a first output RF signal to a digital data path. The two clusters are each received with different bandwidth filter (see column 10, lines 22-53).

and a second amplifier stage configured to receive and amplify the input RF signal and provide a second output RF signal to a second load circuit when the second amplifier stage is enabled, the second output RF signal including at least a second carrier of the multiple carriers different than the first carrier (similarly, FIG. 15 further discloses a Radio Frequency Integrated Circuit (RFIC1) 1 including second amplifier stage LNA to provide a second output RF signal to a digital data path. The two clusters are each received with different bandwidth filter (see column 10, lines 22-53)).

Regarding claim 11, Kaukovuori et al. further discloses an input matching circuit coupled to the first and second amplifier stages and configured to receive a receiver input signal and provide the input RF signal (FIG. 15 discloses an RF FEM coupled to the RFIC1 and RFIC2 and configured to provide an RF input (see column 10 lines 25-35).

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Regarding claim 12, Kaukovuori et al. further discloses the input matching circuit being tunable and comprising at least one adjustable circuit component (FIG. 15 discloses an RF FEM configured to split the RF input signal (see column 10 lines 25-35).

Regarding claim 14, Kaukovuori et al. further discloses the first amplifier stage configured to receive and amplify the input RF signal and provide the first output RF signal to the first load circuit when the first amplifier stage is enabled (as recited in claim 1 rejection, FIG. 15 discloses a Radio Frequency Integrated Circuit (RFIC1) 1 including first amplifier stage LNA to provide a first output RF signal to a digital data path. The two clusters are each received with different bandwidth filter (see column 10, lines 22-53)).

and the second amplifier stage configured to receive and amplify the input RF signal and provide the second output RF signal to the second load circuit when the second amplifier stage is enabled (similarly, FIG. 15 further discloses a Radio Frequency Integrated Circuit (RFIC1) 1 including second amplifier stage LNA to provide a second output RF signal to a digital data path. The two clusters are each received with different bandwidth filter (see column 10, lines 22-53))

Note: the rejection is based on ***the input RF signal (not a second input RF signal)***.

Regarding claim 17, claim is rejected on the same ground as for claim 1 because of similar scope.

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claim 19 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Kaukovuori et al. U.S. Patent 8,442,473.

Regarding claim 19, claim is rejected on the same ground as for claim 1 because of similar scope. However, Kaukovuori et al. does not expressly disclose the first means for amplifying and the second means for amplifying as set forth in the application claim. Nevertheless, since FIG. 15 RFIC1 and RFIC2 employ LNAs (low noise amplifiers) as

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amplifying stages, therefore, one of ordinary skill in the art at the time the invention was made would have recognized the interchangeability of the LNAs, as taught in Kaukovuori et al. invention, for the claimed first means and second means for amplifying.

Allowable Subject Matter

6. Claims 2-10, 13, 15-16, 18 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHANH C. TRAN whose telephone number is (571)272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KCT

*/KHANH C TRAN/
Primary Examiner, Art Unit 2631*

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