

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 13/590,423 Confirmation No. 9482
Applicant : Aleksandar Modrag Tasic
Filed : August 21, 2012
Art Unit : 2631
Examiner : Khanh C. Tran
Docket No. : 121973
Customer No. : 23696

AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to an Office Action dated December 26, 2014, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

Attorney Docket No. 121973
Customer No. 23696

Amendments to the Claims:

Please note that all claims currently pending and under consideration in the referenced application are shown below. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) An apparatus comprising:
 - a first amplifier stage configured to be independently enabled or disabled, the first amplifier stage further 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 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; and
 - a second amplifier stage configured to be independently enabled or disabled, the second amplifier stage further 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.
2. (Original) The apparatus of claim 1, the first amplifier stage comprising a first gain transistor coupled to a first cascode transistor, the second amplifier stage comprising a second gain transistor coupled to a second cascode transistor, and the input RF signal being provided to both the first and second gain transistors.
3. (Original) The apparatus of claim 2, the first amplifier stage further comprising a first inductor coupled to the first gain transistor, and the second amplifier stage further comprising a second inductor coupled to the second gain transistor.

4. (Original) The apparatus of claim 2, the first and second gain transistors having sources coupled to circuit ground.
5. (Original) The apparatus of claim 2, the first and second amplifier stages providing the first and second output RF signals in a first mode and providing the first output RF signal but not the second output RF signal in a second mode, the first and second cascode transistors being enabled in the first mode, and only one of the first and second cascode transistors being enabled in the second mode.
6. (Original) The apparatus of claim 5, the first and second gain transistors being applied the input RF signal in both the first mode and the second mode, and one of the first and second gain transistors operating in a saturation region and the other one of the first and second gain transistors operating in a linear region in the second mode.
7. (Original) The apparatus of claim 1, further comprising:
a feedback circuit coupled between an output and an input of at least one of the first and second amplifier stages.
8. (Original) The apparatus of claim 7, the feedback circuit comprising a resistor, or a capacitor, or both a resistor and a capacitor.
9. (Original) The apparatus of claim 1, further comprising:
a first attenuation circuit coupled to the first amplifier stage and configured to receive the input RF signal; and
a second attenuation circuit coupled to the second amplifier stage and configured to receive the input RF signal.
10. (Original) The apparatus of claim 1, further comprising:

an attenuation circuit coupled to the first and second amplifier stages and configured to receive the input RF signal.

11. (Original) The apparatus of claim 1, further comprising:
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.
12. (Original) The apparatus of claim 11, the input matching circuit being tunable and comprising at least one adjustable circuit component.
13. (Original) The apparatus of claim 1, further comprising:
a third amplifier stage configured to receive and amplify a second input RF signal and provide the first output RF signal to the first load circuit when the third amplifier stage is enabled; and
a fourth amplifier stage configured to receive and amplify the second input RF signal and provide the second output RF signal to the second load circuit when the fourth amplifier stage is enabled.
14. (Original) The apparatus of claim 1,
the first amplifier stage configured to receive and amplify the input RF signal or a second input RF signal and provide the first output RF signal to the first load circuit when the first amplifier stage is enabled, and
the second amplifier stage configured to receive and amplify the input RF signal or the second input RF signal and provide the second output RF signal to the second load circuit when the second amplifier stage is enabled.
15. (Original) The apparatus of claim 2, the first amplifier stage further comprising a third gain transistor coupled to a third cascode transistor, the second amplifier stage further comprising a fourth gain transistor coupled to a fourth cascode transistor, and a second

input RF signal being provided to both the third and fourth gain transistors.

16. (Original) The apparatus of claim 14, further comprising:

a third amplifier stage configured to receive and amplify a third input RF signal or a fourth input RF signal and provide the first output RF signal to the first load circuit when the third amplifier stage is enabled; and

a fourth amplifier stage configured to receive and amplify the third input RF signal or the fourth input RF signal and provide the second output RF signal to the second load circuit when the fourth amplifier stage is enabled.

17. (Currently amended) A method comprising:

amplifying a first input radio frequency (RF) signal with a first amplifier stage to obtain a first output RF signal when the first amplifier stage is enabled, the first amplifier stage configured to be independently enabled or disabled, the first 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; and

amplifying the first input RF signal or a second input RF signal with a second amplifier stage to obtain a second output RF signal when the second amplifier stage is enabled, the second amplifier stage configured to be independently enabled or disabled, the second output RF signal including at least a second carrier of the multiple carriers different than the first carrier.

18. (Original) The method of claim 17, further comprising:

enabling the first and second amplifier stages in a first mode to obtain the first and second output RF signals; and

enabling the first amplifier stage and disabling the second amplifier stage in a second mode to obtain the first output RF signal but not the second output RF signal.

19. (Currently amended) An apparatus comprising:

first means for amplifying configured to amplify a first input radio frequency (RF) signal and provide a first output RF signal when the first means for amplifying is enabled, the first means for amplifying configured to be independently enabled or disabled, the first input RF signal employing carrier aggregation comprising transmissions sent on multiple carriers at different frequencies to a wireless device, the second output RF signal including at least a second carrier of the multiple carriers different than the first carrier; and

second means for amplifying configured to amplify the first input RF signal or a second input RF signal and provide a second output RF signal when the second means for amplifying is enabled, the second means for amplifying configured to be independently enabled or disabled, the second output RF signal including at least a second carrier of the multiple carriers different than the first carrier.

20. (Original) The apparatus of claim 19, further comprising:

means for enabling the first and second means for amplifying in a first mode to obtain the first and second output RF signals; and

means for enabling the first means for amplifying and disabling the second means for amplifying in a second mode to obtain the first output RF signal but not the second output RF signal.

REMARKS

The Office Action mailed December 26, 2014, has been received and reviewed. Claims 1-20 are pending in the application. Claims 1, 11, 12, 14, 17 and 19 stand rejected. Claims 2-10, 13, 15, 16, 18 and 20 are objected to as depending from rejected base claims. Applicant proposes to amend claims 1, 17, and 19, submits the following remarks, and respectfully requests reconsideration of the application. No new matter has been added.

Examiner Interview

Applicant expresses appreciation to Examiner Khanh C. Tran for the telephonic Examiner Interview of February 11, 2015 with Applicant's representatives, Kevin K. Johanson (Reg. No. 38,506) and Jason P. Nixon (Reg. No. 58,604). Applicant herein acknowledges the substance of the Examiner Interview in compliance with MPEP § 713.04. Applicant asserts that during the Examiner Interview of February 11, 2015, agreement was reached by the Examiner that the proposed amendments, now recited in the currently amended claims, overcome the rejections based on the cited references.

35 U.S.C. § 102 Anticipation Rejections

Anticipation Rejection Based on Kaukovuori

Claims 1, 11, 12, 14 and 17 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 8,442,473 to Kaukovuori *et al.* ("Kaukovuori"). Applicant has amended the claims and respectfully requests reconsideration of the rejection as hereinafter set forth.

According to MPEP §2131, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference and the identical invention must be shown in as complete detail as is contained in the claim. Specifically, "unless a reference discloses within the four corners of the document not only *all of the limitations claimed* but also *all of the limitations arranged or combined in the same way as recited in the claim*, it cannot be said to prove prior invention of the thing claimed and, thus, *cannot* anticipate under 35 U.S.C. § 102." *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008) (emphasis added).

Applicant submits that Kaukovuori does not and cannot anticipate under 35 U.S.C. § 102 the presently claimed invention of claims 1, 11, 12, 14 and 17, because Kaukovuori does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims.

Regarding independent claim 1, Applicant's independent claim 1, as proposed to be amended, recites, *inter alia*, "a first amplifier stage configured to be independently enabled or disabled, the first amplifier stage further configured to...provide a first output RF signal to a first load circuit when the first amplifier stage is enabled...and a second amplifier stage configured to be independently enabled or disabled, the second amplifier stage further configured to...provide a second output RF signal to a second load circuit when the second amplifier stage is enabled," which is not disclosed in Kaukovuori.

Regarding independent claim 17, Applicant's independent claim 17, as proposed to be amended, recites, *inter alia*, "amplifying a first input radio frequency (RF) signal with a first amplifier stage to obtain a first output RF signal when the first amplifier stage is enabled, the first amplifier stage configured to be independently enabled or disabled...and amplifying the first input RF signal or a second input RF signal with a second amplifier stage to obtain a second output RF signal when the second amplifier stage is enabled, the second amplifier stage configured to be independently enabled or disabled," which is also not disclosed in Kaukovuori.

In contrast, Kaukovuori appears to disclose nonselective amplifiers that continuously amplify. Furthermore, any 'enabling,' 'selection' or 'reconfiguration,' as disclosed in Kaukovuori, appears to relate to modification of filter bandwidths, and not to enabling an amplifier stage. Specifically, 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 Cluster1 and Cluster2 are each handled by a separate respective receiver chain, as shown in FIG. 15. (Kaukovuori, col. 10, Ins. 23-28; emphasis added).

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).

Applicant respectfully notes that Kaukovuori appears to disclose reconfiguring filter bandwidth, which cannot anticipate Applicant's claimed invention reciting, *inter alia*, "[an] amplifier stage configured to be independently enabled or disabled." Regarding Kaukovuori disclosing "the second branch, also referred to as an additional branch, may be not used, for example by being disconnected or turned off," Applicant respectfully notes that such a disclosure in Kaukovuori supports the switch S1 in Figure 24 of Kaukovuori which merely disconnects the already-amplified output signal from the LNA to the second Direct Conversion Receiver (DCR) (shown within the dashed lines). Accordingly, such a disclosure of a switch S1 after any amplification, also cannot anticipate Applicant's claimed invention reciting, *inter alia*, "[an] amplifier stage configured to be independently enabled or disabled," as claimed by Applicant in independent claims 1 and 17, as proposed to be amended.

Therefore, since Kaukovuori does not disclose Applicant's invention *in as complete detail as is contained in the claims* as is *required* for a proper anticipation rejection, Kaukovuori cannot anticipate, according to 35 U.S.C. §102, Applicant's claimed invention, as proposed to be amended. Accordingly, Applicant respectfully requests the rejections of independent claims 1 and 17 be withdrawn.

Regarding dependent claims 11, 12 and 14, dependent claims 11, 12 and 14 are allowable as depending from now-allowable independent claim 1. Accordingly, Applicant respectfully requests the rejections of dependent claims 11, 12 and 14 be withdrawn.

Obviousness Rejection Based on Kaukovuori

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over

Kaukovuori. Applicant has amended the claims and respectfully requests reconsideration of the rejection as hereinafter set forth.

Applicant respectfully submits that, as stated in the M.P.E.P. at § 2143, “The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination yielded nothing more than predictable results to one of ordinary skill in the art.” *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007) (emphasis added).

The 35 U.S.C. § 103(a) obviousness rejection of claim 19 is improper because the elements for a *prima facie* case of obviousness are not met. Specifically, the rejection fails to meet the criterion that *the prior art reference(s) must teach or suggest all the claims limitations*.

Regarding independent claim 19, Applicant’s independent claim 19, as proposed to be amended, includes claim elements not taught or suggested in the cited reference. Applicant’s independent claim 19, as proposed to be amended, recites, *inter alia*, “first means for amplifying configured to amplify a first input radio frequency (RF) signal and provide a first output RF signal when the first means for amplifying is enabled, the first means for amplifying configured to be independently enabled or disabled...and second means for amplifying configured to amplify the first input RF signal or a second input RF signal and provide a second output RF signal when the second means for amplifying is enabled, the second means for amplifying configured to be independently enabled or disabled.” Applicant respectfully asserts that Kaukovuori does not teach or suggest Applicant’s invention of independent claim 19, as proposed to be amended.

Applicant herein affirms the above-arguments that Kaukovuori appears to teach reconfiguring filter bandwidth and to further teach a switch S1 after the amplification. Such teachings cannot render obvious Applicant’s claimed invention reciting, *inter alia*, “the first means for amplifying configured to be independently enabled or disabled [and] the second means for amplifying configured to be independently enabled or disabled,” as claimed by Applicant in independent claim 19, as proposed to be amended.

Therefore, since Kaukovuori does not teach “the first means for amplifying configured to

be independently enabled or disabled [and] the second means for amplifying configured to be independently enabled or disabled,” the cited reference cannot render obvious, under 35 U.S.C. §103, Applicant’s claimed invention, as proposed to be amended. Accordingly, Applicant respectfully requests the rejection of independent claim 19 be withdrawn.

Objections to Claims 2-10, 13-16, 18 and 20/Allowable Subject Matter

Claims 2-10, 13-16, 18 and 20 stand objected to as being dependent upon rejected base claims, but are indicated to contain allowable subject matter and would be allowable if placed in appropriate independent form. Applicant acknowledges this indication with appreciation, but respectfully asserts that the claims in their present form, along with all other claims presently under consideration, are in condition for allowance.

CONCLUSION

Claims 1-20 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,

Dated: February 25, 2015

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