

**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 April 18, 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 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 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 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 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 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 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 April 18, 2014, has been received and reviewed. Claims 1-20 are pending in the application. Claims 1, 11, 12, 17 and 19 stand rejected. Claims 2-10, 13-16, 18 and 20 are objected to as depending from rejected base claims. Applicant has amended claims 1, 17 and 19, submits the following remarks, and respectfully requests reconsideration of the application. No new matter has been added.

### 35 U.S.C. § 102 Anticipation Rejections

#### Anticipation Rejection Based on Hirose

Claims 1, 11, 12 and 17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 7,317,894 to Hirose (“Hirose”). Applicant has amended the claims and respectfully requests reconsideration of the rejection as hereinafter set forth.

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

**Regarding amended independent claims 1 and 17**, Applicant’s amended independent claims 1 and 17 recite, *inter alia*, “the [] input RF signal employing *carrier aggregation*,” which is **not** disclosed in Hirose. Generally, Applicant’s claimed invention recites “carrier aggregation” which results in an *increased aggregated* data rate. In contrast, Hirose transmits the same signals over different paths which results in *redundant* data at a *common* data rate. Specifically, the



Office Action alleges:

Hirose discloses ... receiving *input RF signal* (e.g. *satellite wave signal and ground wave signal*) .... (Office Action, p. 3; emphasis added)

Applicant respectfully asserts that Hirose's "satellite wave signal and ground wave signal" do not result in "carrier aggregation" as claimed by Applicant in amended independent claims 1 and 17. As stated, Applicant's amended independent claims 1 and 17 recite, *inter alia*, "the [] input RF signal employing *carrier aggregation*," while Hirose discloses *redundant* data at a *common* data rate. Specifically, Hirose discloses:

In an area where it is difficult to receive a radio wave from an elliptical orbit satellite or in an urban area where it is difficult to receive a satellite broadcast radio wave, a radio broadcast receiver receives in some cases a *radio wave (ground wave) from a ground repeater* which is controlled by a Geo stationary orbit satellite. Therefore, the *satellite radio broadcast receiver receives three radio waves in total, two satellite waves and one ground wave, at the same time* at its wide band RF amplifier. FIG. 2 shows the spectrum of radio waves to be received by the receiver. The center frequency of this spectrum is approximately 2.3 GHz, and the satellite wave and ground wave have both the band width of about 4 MHz. Although the *satellite wave #1 and the ground wave are received at the same timing, the satellite wave #2 is received at the timing delayed by several seconds*, and so time diversity is presented ....

2) Features of Reception System

*The receiver receives three waves containing the same contents*. However, each radio wave has different frequency and propagation path, and a different time period while *the same data is received*. These radio waves are synthesized and demodulated so that the effects of frequency diversity, space diversity and time diversity can be obtained. (Hirose, col. 1, lns. 26-67; emphasis added)

Clearly Hirose discloses "[t]he receiver receives three waves containing the same contents," which results in frequency/time/space diversity, however, such receipt of diversity signals does not disclose "*carrier aggregation*" as claimed by Applicant. Specifically, a disclosure in Hirose of receipt of the "same data" over "three [different] waves" does not anticipate Applicant's invention of "the [] input RF signal employing *carrier aggregation*" as claimed by Applicant in amended independent claims 1 and 17.

Therefore, since Hirose does not disclose Applicant's claimed invention *in as complete detail as is contained in the claims* as is *required* for a proper anticipation rejection, Hirose



**cannot** anticipate, according to 35 U.S.C. § 102, Applicant's invention as presently claimed.

Accordingly, Applicant respectfully requests the rejections of amended independent claims 1 and 17 be withdrawn.

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

### **35 U.S.C. § 103(a) Obviousness Rejections**

#### Obviousness Rejection Based on Hirose

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hirose. Applicant has amended the claim and respectfully requests reconsideration of the rejection as hereinafter set forth.

To establish a *prima facie* case of obviousness the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 985 (CCPA 1974); *see also* MPEP § 2143.03. Additionally, there must be "a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1742, 167 L.Ed.2d 705, 75 USLW 4289, 82 U.S.P.Q.2d 1385 (2007). Finally, to establish a *prima facie* case of obviousness there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Furthermore, the reason that would have prompted the combination and the reasonable expectation of success must be found in the prior art, common knowledge, or the nature of the problem itself, and not based on the Applicants' disclosure. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006); MPEP § 2144. Underlying the obvious determination is the fact that statutorily prohibited hindsight cannot be used. *KSR*, 127 S.Ct. at 1742; *DyStar*, 464 F.3d at 1367.

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 includes claim elements not taught or suggested in the cited reference. Applicant's independent claim 19 recites, in part, "the first input RF signal employing *carrier aggregation*." Applicant respectfully asserts that Hirose does not teach or suggest Applicant's invention as presently claimed in amended independent claim 19.

The Office Action alleges:

Regarding claim 19, [the] claim is rejected on the same ground as for claim 1 because of similar scope. (Office Action, p. 6)

Applicant herein affirms the above-arguments that Hirose does not teach or suggest "the first input RF signal employing *carrier aggregation*" as claimed by Applicant in amended independent claim 19. As stated above, Hirose teaches "[t]he receiver receives three waves containing the same contents," which results in frequency/time/space diversity, however, such receipt of diversity signals does **not** teach "*carrier aggregation*" as claimed by Applicant. Specifically, a disclosure in Hirose of receipt of the "same data" over "three [different] waves" does **not** render obvious Applicant's invention of "the first input RF signal employing *carrier aggregation*" as claimed by Applicant in amended independent claim 19.

Therefore, since Hirose does not teach "the first input RF signal employing *carrier aggregation*" as claimed by Applicant, the cited reference **cannot** render obvious, under 35 U.S.C. §103, Applicant's invention as presently claimed. Accordingly, Applicant respectfully requests the rejection of independent claim 19 be withdrawn.

### **Objections to Claims 2-6, 8-16, 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: June 6, 2014

By: /Ramin Mobarhan, Reg# 50,182/

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