

EXHIBIT

DSS-2007



US008837653B2

(12) **United States Patent**
Keegan et al.

(10) **Patent No.:** **US 8,837,653 B2**
(45) **Date of Patent:** ***Sep. 16, 2014**

(54) **HIGH FREQUENCY SIGNAL RECEIVER WITH SELF-CALIBRATED GROUP DELAY COMPENSATION**

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(71) Applicant: **Deere & Company**, Moline, IL (US)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

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(21) Appl. No.: **13/892,209**

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(22) Filed: **May 10, 2013**

(Continued)

(65) **Prior Publication Data**

US 2013/0329841 A1 Dec. 12, 2013

Related U.S. Application Data

(60) Provisional application No. 61/657,650, filed on Jun. 8, 2012.

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(51) **Int. Cl.**

H04B 1/10 (2006.01)
H04B 1/12 (2006.01)

(52) **U.S. Cl.**

CPC **H04B 1/123** (2013.01)
USPC **375/350**

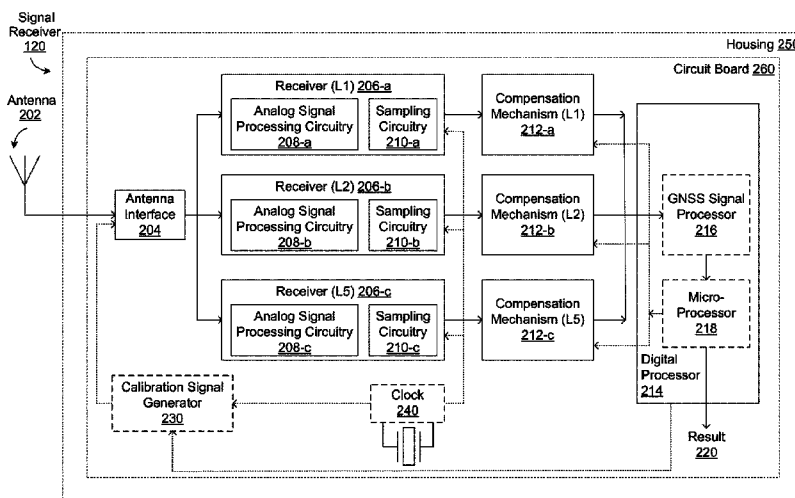
(58) **Field of Classification Search**

CPC H04B 1/123; H04L 25/061; H04L 7/0054; H04L 27/364
USPC 375/232–236, 350
See application file for complete search history.

(57) **ABSTRACT**

A signal receiver includes an antenna interface for receiving signals from an antenna, analog signal processing circuitry coupled to the antenna interface for processing the received signals to produce filtered signals, sampling circuitry to sample the filtered signals so as to produce digitized received signals, a digital compensator to receive the digitized received signals and compensate for non-uniform group delay introduced by the analog signal processing circuitry to produce compensated digitized received signals, and a digital processor to process the compensated digitized received signals so as to produce a result.

23 Claims, 13 Drawing Sheets



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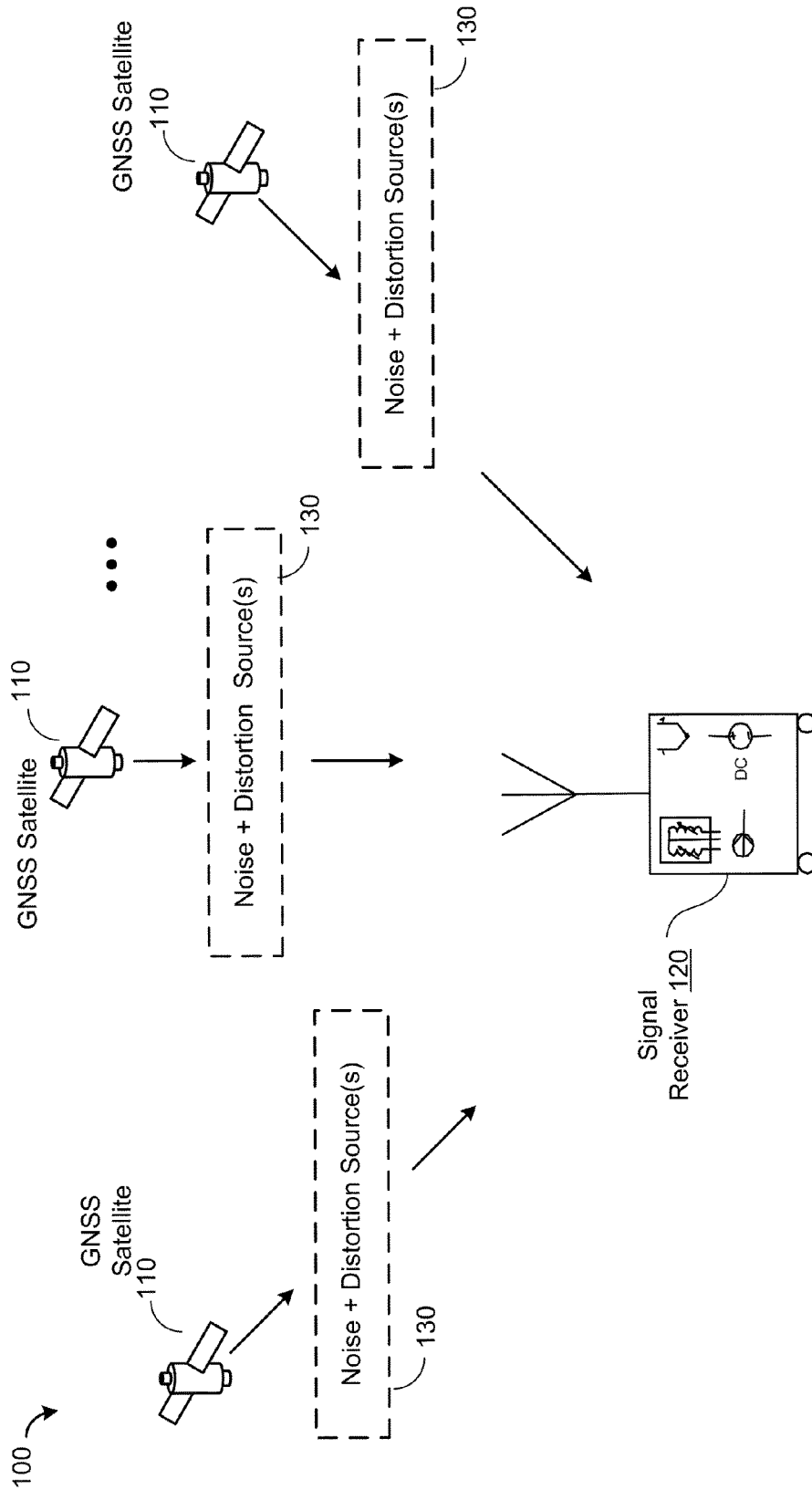


Figure 1

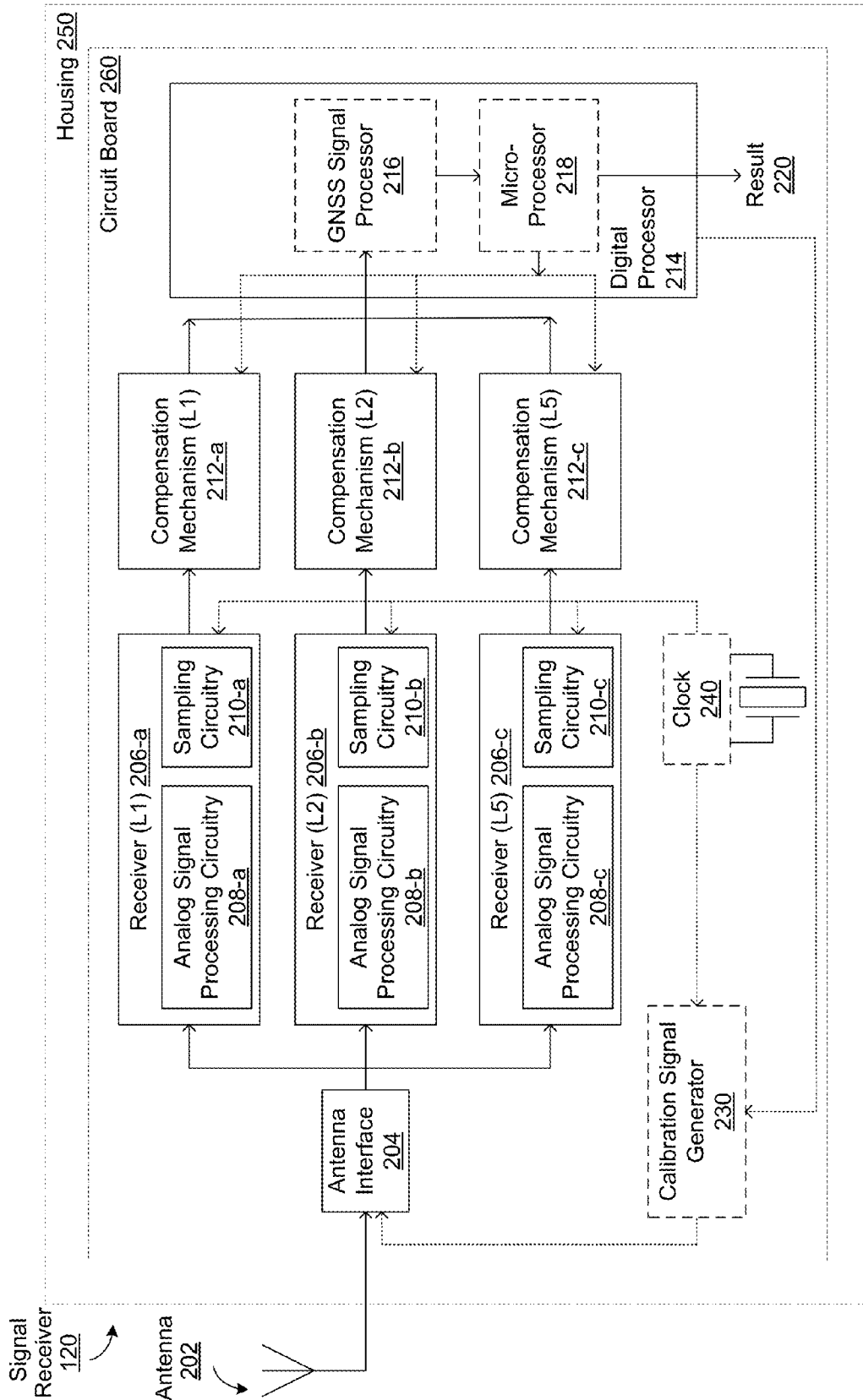


Figure 2

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