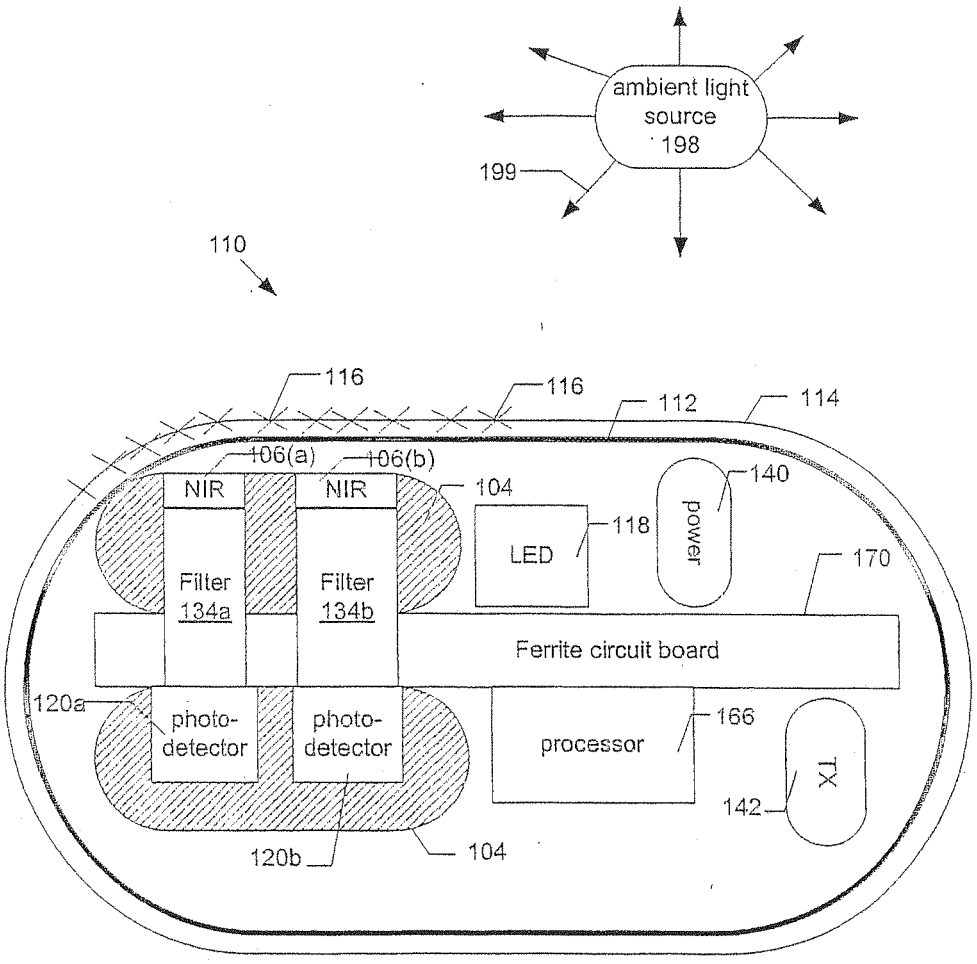

ambient light source 198
199
110
116
116
112
114
106(a)
106(b)
NIR
NIR
104
LED
118
power
140
170
Filter 134a
Filter 134b
Ferrite circuit board
120a
photo-detector
photo-detector
processor
166
TX
142
120b
104

FIG. 1

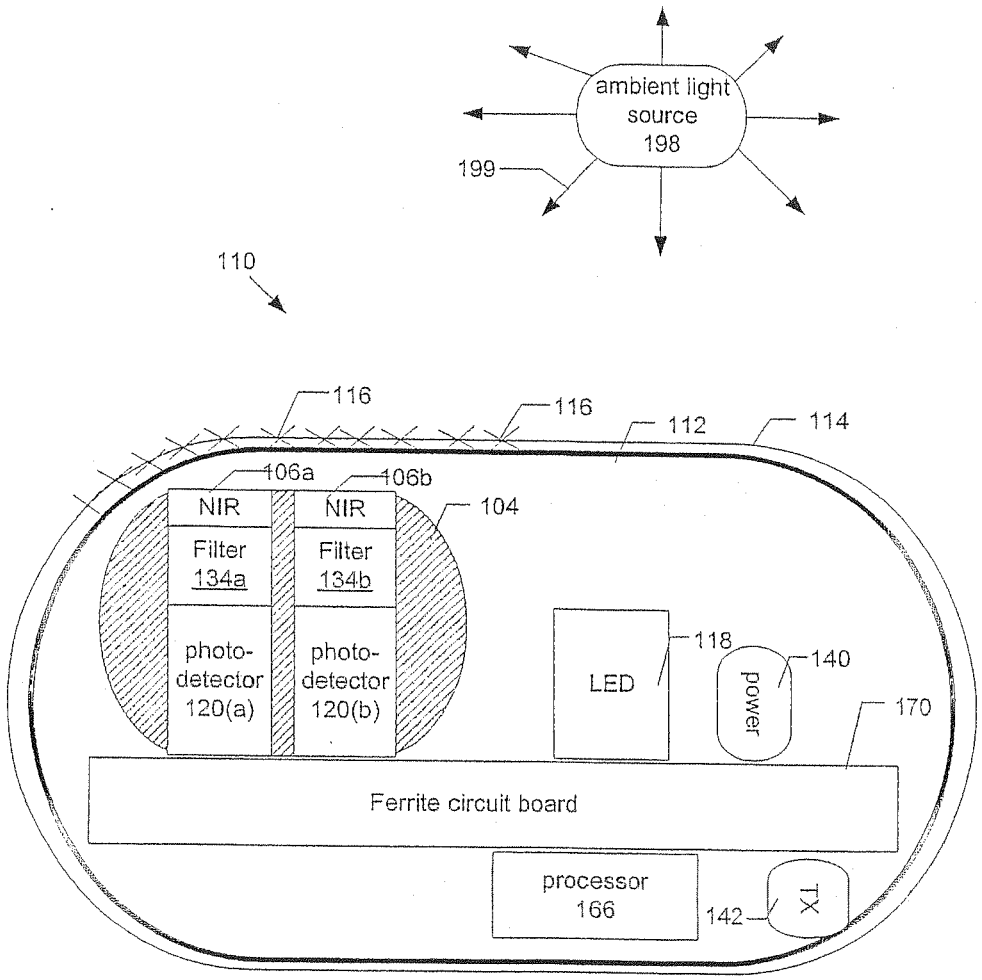

ambient light source 198
199
110
116
116
112
114
106a
106b
NIR
NIR
104
Filter 134a
Filter 134b
photo-detector 120(a)
photo-detector 120(b)
LED
118
power
140
170
Ferrite circuit board
processor 166
142
TX

FIG. 2

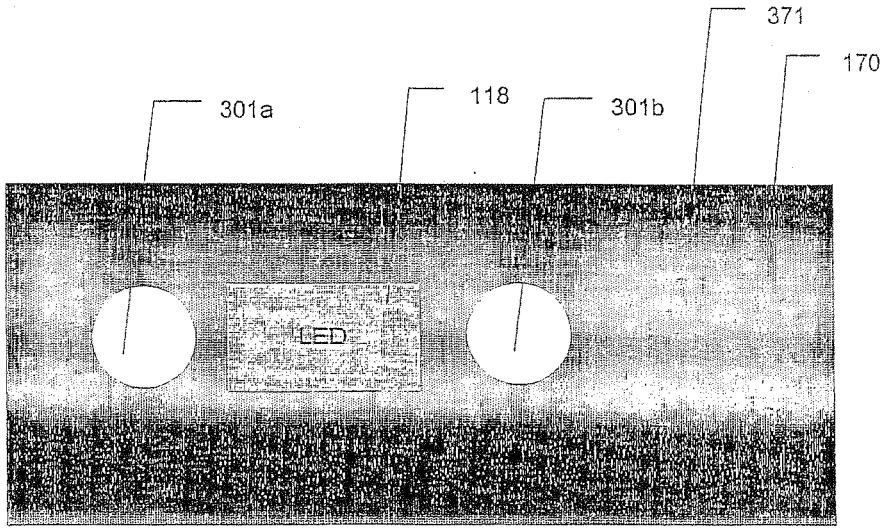


FIG. 3

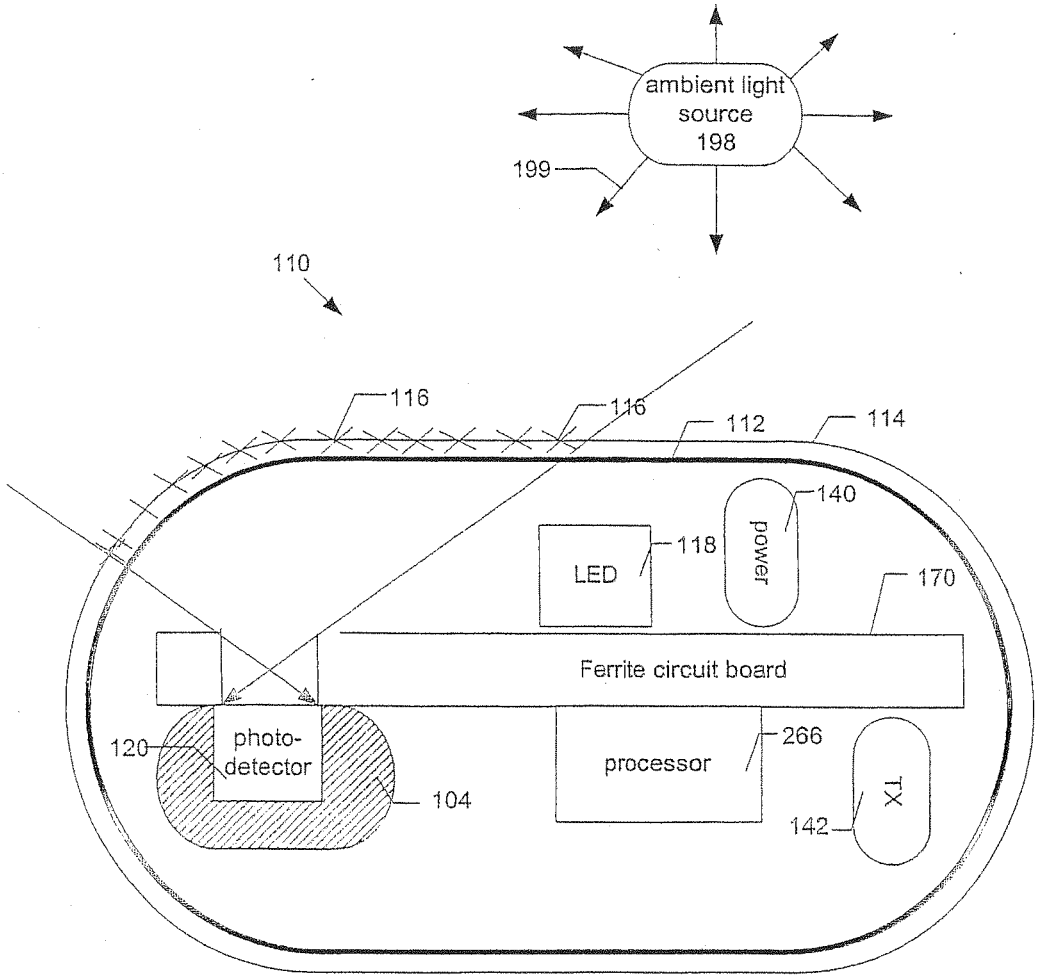

ambient light source 198
199
110
116
116
112
114
140
power
LED
118
170
Ferrite circuit board
120
photo-detector
104
processor
266
TX
142

FIG. 4

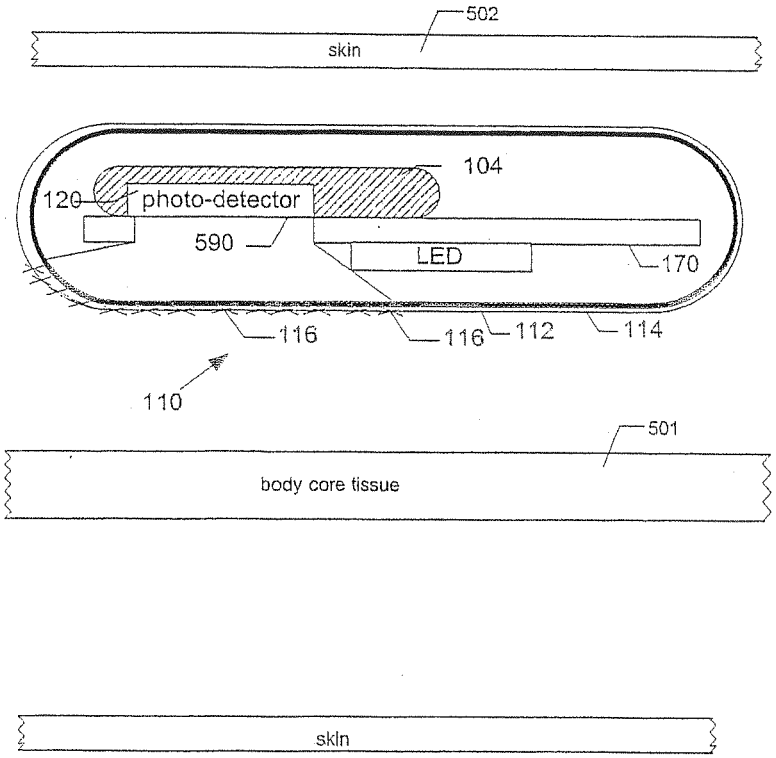

502
skin
104
120
photo-detector
590
LED
170
116
116
112
114
110
501
body core tissue
skin

FIG. 5

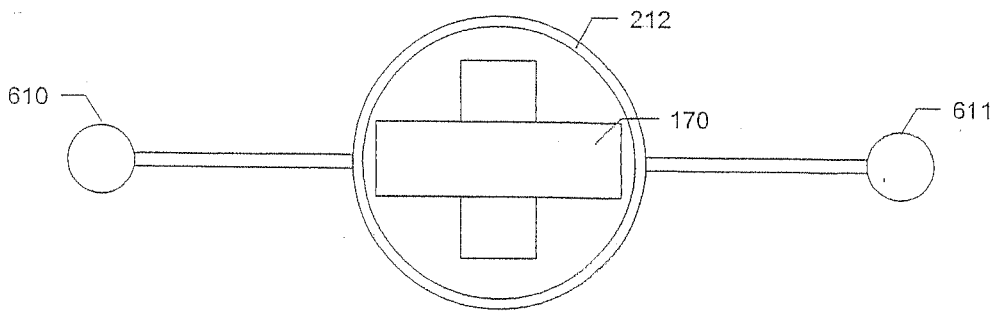


FIG. 6

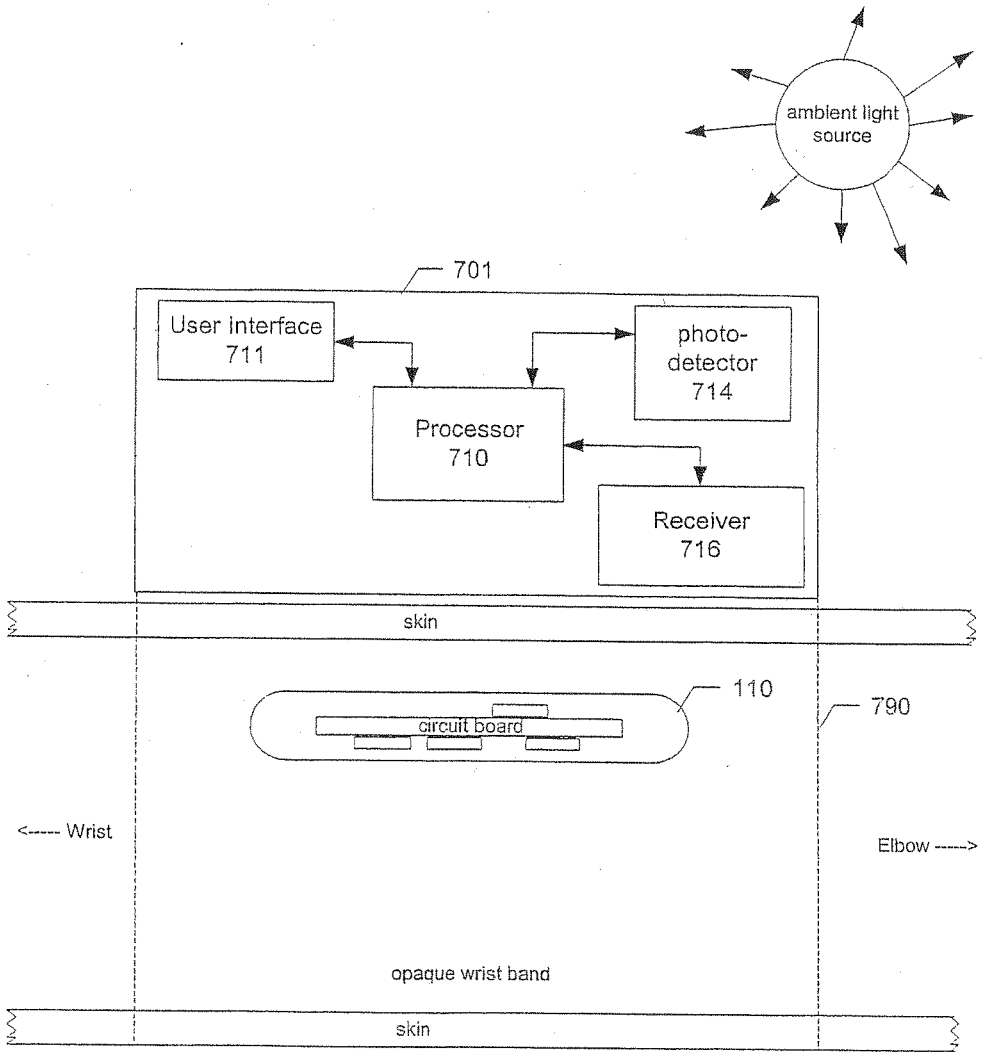

ambient light source
701
User interface 711
photo-detector 714
Processor 710
Receiver 716
skin
110
circuit board
790
<----- Wrist
Elbow ----->
opaque wrist band
skin

FIG. 7

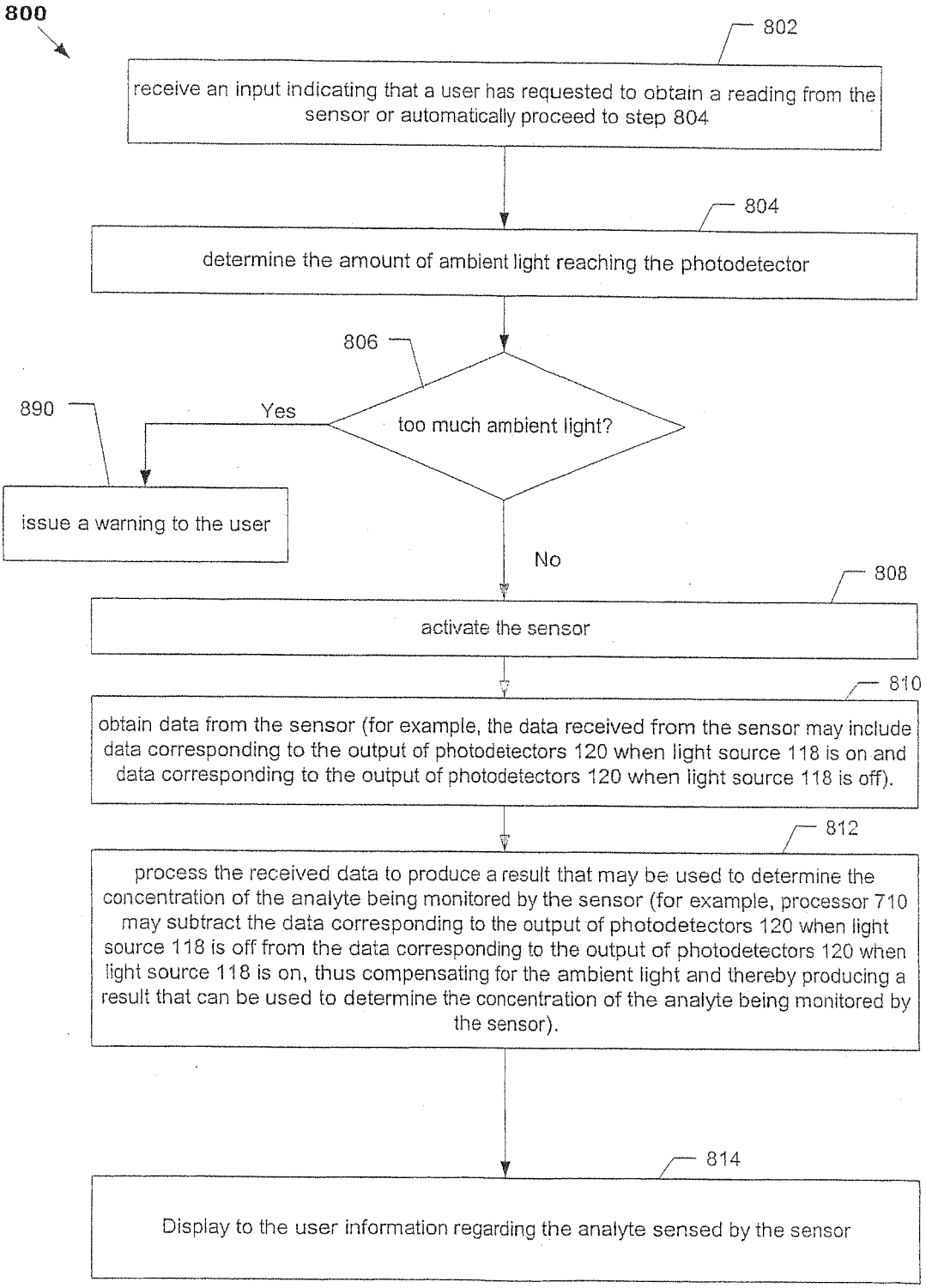

800
802
receive an input indicating that a user has requested to obtain a reading from the sensor or automatically proceed to step 804
804
determine the amount of ambient light reaching the photodetector
806
too much ambient light?
Yes
890
issue a warning to the user
No
808
activate the sensor
810
obtain data from the sensor (for example, the data received from the sensor may include data corresponding to the output of photodetectors 120 when light source 118 is on and data corresponding to the output of photodetectors 120 when light source 118 is off).
812
process the received data to produce a result that may be used to determine the concentration of the analyte being monitored by the sensor (for example, processor 710 may subtract the data corresponding to the output of photodetectors 120 when light source 118 is off from the data corresponding to the output of photodetectors 120 when light source 118 is on, thus compensating for the ambient light and thereby producing a result that can be used to determine the concentration of the analyte being monitored by the sensor).
814
Display to the user information regarding the analyte sensed by the sensor

FIG. 8

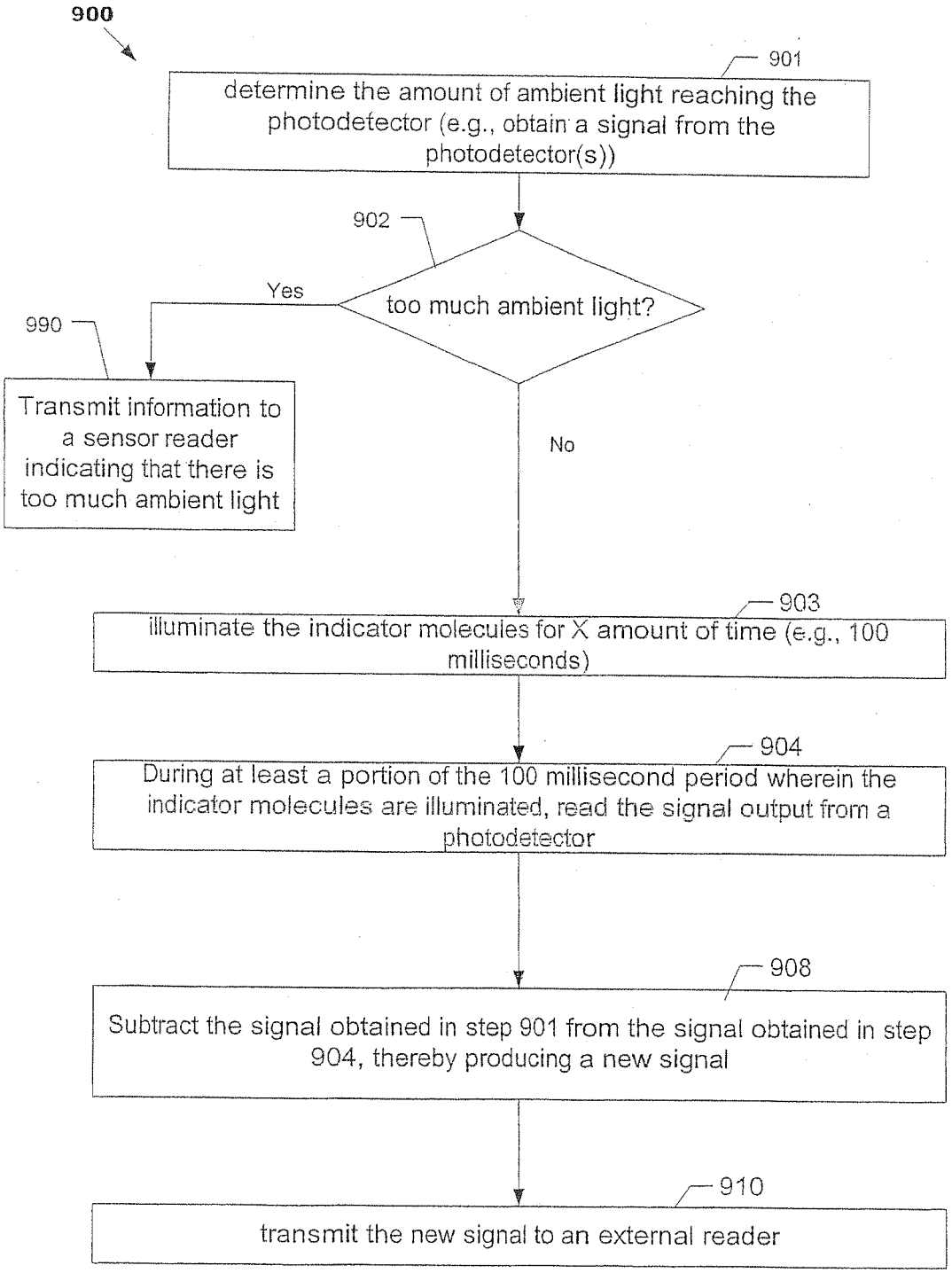

900
901
determine the amount of ambient light reaching the photodetector (e.g., obtain a signal from the photodetector(s))
902
too much ambient light?
Yes
990
Transmit information to a sensor reader indicating that there is too much ambient light
No
903
illuminate the indicator molecules for X amount of time (e.g., 100 milliseconds)
904
During at least a portion of the 100 millisecond period wherein the indicator molecules are illuminated, read the signal output from a photodetector
908
Subtract the signal obtained in step 901 from the signal obtained in step 904, thereby producing a new signal
910
transmit the new signal to an external reader

FIG. 9

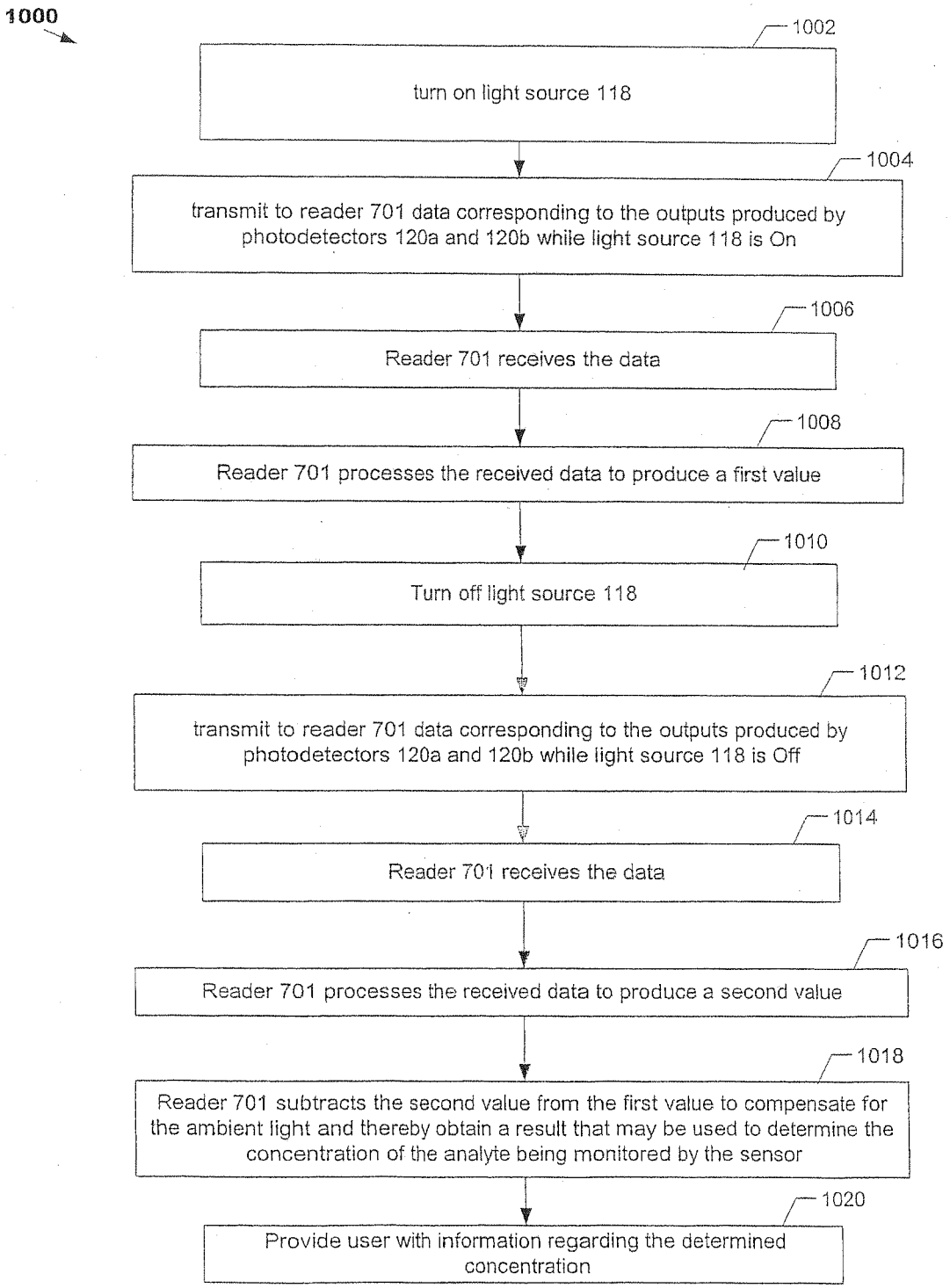

1000
1002
turn on light source 118
1004
transmit to reader 701 data corresponding to the outputs produced by photodetectors 120a and 120b while light source 118 is On
1006
Reader 701 receives the data
1008
Reader 701 processes the received data to produce a first value
1010
Turn off light source 118
1012
transmit to reader 701 data corresponding to the outputs produced by photodetectors 120a and 120b while light source 118 is Off
1014
Reader 701 receives the data
1016
Reader 701 processes the received data to produce a second value
1018
Reader 701 subtracts the second value from the first value to compensate for the ambient light and thereby obtain a result that may be used to determine the concentration of the analyte being monitored by the sensor
1020
Provide user with information regarding the determined concentration

FIG. 10