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Certified by

*Kathi*

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|-----------|
| <b>Application Data Sheet 37 CFR 1.76</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                              | Attorney Docket Number | 24351US02 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                              | Application Number     |           |
| Title of Invention                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Method and Apparatus for Spectrum Monitoring |                        |           |
| <p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p> |                                              |                        |           |

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| <input type="checkbox"/> | Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.) |
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## Applicant Information:

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|                                                                                                                                                                                 | Timothy           |                                           | Gallagher          |                                                                |                                                             |
| <b>Residence Information (Select One)</b> <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service |                   |                                           |                    |                                                                |                                                             |
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| <b>Mailing Address of Applicant:</b>                                                                                                                                            |                   |                                           |                    |                                                                |                                                             |
| <b>Address 1</b>                                                                                                                                                                |                   | 840 Val Sereno Dr.                        |                    |                                                                |                                                             |
| <b>Address 2</b>                                                                                                                                                                |                   |                                           |                    |                                                                |                                                             |
| <b>City</b>                                                                                                                                                                     | Encinitas         | <b>State/Province</b>                     | CA                 |                                                                |                                                             |
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|                                                                                                                                                                                 | Patrick           |                                           | Tierney            |                                                                |                                                             |
| <b>Residence Information (Select One)</b> <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service |                   |                                           |                    |                                                                |                                                             |
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| <b>Mailing Address of Applicant:</b>                                                                                                                                            |                   |                                           |                    |                                                                |                                                             |
| <b>Address 1</b>                                                                                                                                                                |                   | 877 Stevens Ave. #4200                    |                    |                                                                |                                                             |
| <b>Address 2</b>                                                                                                                                                                |                   |                                           |                    |                                                                |                                                             |
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|                                                                                                                                                                                                                               |           |                                              |                      |           |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------------------|----------------------|-----------|--|
| <b>Application Data Sheet 37 CFR 1.76</b>                                                                                                                                                                                     |           | Attorney Docket Number                       |                      | 24351US02 |  |
|                                                                                                                                                                                                                               |           | Application Number                           |                      |           |  |
| Title of Invention                                                                                                                                                                                                            |           | Method and Apparatus for Spectrum Monitoring |                      |           |  |
| Citizenship under 37 CFR 1.41(b) i                                                                                                                                                                                            |           | CN                                           |                      |           |  |
| <b>Mailing Address of Applicant:</b>                                                                                                                                                                                          |           |                                              |                      |           |  |
| Address 1                                                                                                                                                                                                                     |           | 10563 Blue Granite Dr                        |                      |           |  |
| Address 2                                                                                                                                                                                                                     |           |                                              |                      |           |  |
| City                                                                                                                                                                                                                          | San Diego |                                              | State/Province       | CA        |  |
| Postal Code                                                                                                                                                                                                                   | 92127     |                                              | Country <sup>i</sup> | US        |  |
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## Application Information:

|                                         |                                              |                                           |                                     |
|-----------------------------------------|----------------------------------------------|-------------------------------------------|-------------------------------------|
| Title of the Invention                  | Method and Apparatus for Spectrum Monitoring |                                           |                                     |
| Attorney Docket Number                  | 24351US02                                    | Small Entity Status Claimed               | <input checked="" type="checkbox"/> |
| Application Type                        | Nonprovisional                               |                                           |                                     |
| Subject Matter                          | Utility                                      |                                           |                                     |
| Suggested Class (if any)                |                                              | Sub Class (if any)                        |                                     |
| Suggested Technology Center (if any)    |                                              |                                           |                                     |
| Total Number of Drawing Sheets (if any) | 7                                            | Suggested Figure for Publication (if any) | 1B                                  |

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| <input type="checkbox"/> <b>Request Not to Publish.</b> I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application <b>has not and will not</b> be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing. |

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| <b>Application Data Sheet 37 CFR 1.76</b> |                                              | Attorney Docket Number | 24351US02 |
|                                           |                                              | Application Number     |           |
| Title of Invention                        | Method and Apparatus for Spectrum Monitoring |                        |           |
| Customer Number                           | 23446                                        |                        |           |

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|                                                                                                                                                                                                                                                                                                                                                                                                        |                    |                          |                          |
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| Prior Application Status                                                                                                                                                                                                                                                                                                                                                                               | Pending            | <a href="#">Remove</a>   |                          |
| Application Number                                                                                                                                                                                                                                                                                                                                                                                     | Continuity Type    | Prior Application Number | Filing Date (YYYY-MM-DD) |
|                                                                                                                                                                                                                                                                                                                                                                                                        | non provisional of | 61532098                 | 2011-09-08               |
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| Application Number                                                                                                                                                                                                                                                                                          | Country <sup>i</sup> | Parent Filing Date (YYYY-MM-DD) | Priority Claimed                                              |
|                                                                                                                                                                                                                                                                                                             |                      |                                 | <input type="radio"/> Yes <input checked="" type="radio"/> No |
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|                                                                                                                                                              |
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|                                           |                                              |                        |           |
|-------------------------------------------|----------------------------------------------|------------------------|-----------|
| <b>Application Data Sheet 37 CFR 1.76</b> |                                              | Attorney Docket Number | 24351US02 |
|                                           |                                              | Application Number     |           |
| Title of Invention                        | Method and Apparatus for Spectrum Monitoring |                        |           |

|                   |                  |                  |                          |                                     |
|-------------------|------------------|------------------|--------------------------|-------------------------------------|
| <b>Signature</b>  | /Chad M. Gilles/ |                  | <b>Date (YYYY-MM-DD)</b> | 2012-09-10                          |
| <b>First Name</b> | Chad             | <b>Last Name</b> | Gilles                   | <b>Registration Number</b><br>60590 |

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Filed electronically on  
Sept. 10, 2012 - CMG

## METHOD AND APPARATUS FOR SPECTRUM MONITORING

### PRIORITY CLAIM

[0001] This patent application makes reference to, claims priority to and claims benefit from United States Provisional Patent Application Serial No. 61/532,098 entitled “Method and Apparatus for Spectrum Monitoring” and filed on September 8, 2011.

[0002] The above application is hereby incorporated herein by reference in its entirety.

### INCORPORATION BY REFERENCE

[0003] This patent application also makes reference to:

United States Patent Application Serial No. 13/336,451 entitled “Method and Apparatus for Broadband Data Conversion” and filed on December 23, 2011; and

United States Patent Application Serial No. 13/485,003 entitled “Multi-layer Time-Interleaved Analog-to-Digital Converter (ADC)” and filed on May 31, 2012; and

United States Patent Application Serial No. 13/588,769 entitled “Multi-Standard Coverage Map Generation” and filed on August 17, 2012.

[0004] Each of the above stated applications is hereby incorporated herein by reference in its entirety.

## FIELD OF THE INVENTION

[0005] Certain embodiments of the invention relate to signal processing. More specifically, certain embodiments of the invention relate to a method and system for spectrum monitoring.

## BACKGROUND OF THE INVENTION

[0006] Network-based services can become unacceptable if network parameters fall outside of those for which receivers in the network were designed. For example, in a cable television system there are specifications for the number of channels on the plant, the types of channels, the signal levels of those channels and the impairments that can be on the plant that would affect the performance of the receiver. If some or all of these parameters deviate outside acceptable bounds, the user may experience unacceptable performance. Conventional methods and apparatuses for monitoring network parameters are too costly and impractical for use in customer-premises equipment (CPE).

[0007] Further limitations and disadvantages of conventional and traditional approaches will become apparent to one of skill in the art, through comparison of such systems with some aspects of the present invention as set forth in the remainder of the present application with reference to the drawings.

## BRIEF SUMMARY OF THE INVENTION

[0008] A system and/or method is provided for spectrum monitoring, substantially as shown in and/or described in connection with at least one of the figures, as set forth more completely in the claims.

[0009] These and other advantages, aspects and novel features of the present invention, as well as details of an illustrated embodiment thereof, will be more fully understood from the following description and drawings.

BRIEF DESCRIPTION OF SEVERAL VIEWS OF THE DRAWINGS

[0010] FIG. 1A depicts an example cable system in accordance with an example embodiment of the invention.

[0011] FIG. 1B depicts an example receiver operable to perform spectrum monitoring in accordance with an example embodiment of the invention.

[0012] FIG. 1C depicts an example satellite system in accordance with an example embodiment of the invention.

[0013] FIG. 2A depicts an example RF front-end of a receiver operable to perform spectrum monitoring in accordance with an example embodiment of the invention.

[0014] FIG. 2B depicts another example RF front-end of a receiver operable to perform spectrum monitoring in accordance with an example embodiment of the invention.

[0015] FIG. 3 depicts an example channelizer which may be utilized for performing spectrum monitoring in accordance with an example embodiment of the invention.

[0016] FIG. 4 is a flow chart illustrating example steps for spectrum monitoring in accordance with an example embodiment of the invention.

## DETAILED DESCRIPTION OF THE INVENTION

[0017] As utilized herein the terms "circuits" and "circuitry" refer to physical electronic components (i.e. hardware) and any software and/or firmware ("code") which may configure the hardware, be executed by the hardware, and or otherwise be associated with the hardware. As utilized herein, "and/or" means any one or more of the items in the list joined by "and/or". For example, "x and/or y" means any element of the three-element set {(x), (y), (x, y)}. Similarly, "x, y, and/or z" means any element of the seven-element set {(x), (y), (z), (x, y), (x, z), (y, z), (x, y, z)}. As utilized herein, the terms "block" and "module" refer to functions than can be implemented in hardware, software, firmware, or any combination of one or more thereof.

[0018] FIG. 1A depicts an example communication system in accordance with an example embodiment of the invention. Shown in FIG. 1 is a terrestrial television antenna 102, a satellite dish 104, an Internet Protocol (IP) network 106, a headend 108, a wide area network (e.g., hybrid fiber-coaxial (HFC) network) 118, a gateways 120a and 120b, end systems 126a and 126b (e.g., computers), and end systems 128a and 128b. The headend 108 comprises a switch 110, a video modulator 112, a cable modem termination system (CMTS) 114, and a splitter/combiner 116.

[0019] For downstream traffic, the headend 108 may receive television signals via the antenna 102 and the satellite dish 104, and may receive data via the IP network 106. The switch 110 may convey the television signals to the video modulator 112 and the data to the CMTS 114. The video modulator 112 may modulate the received television signals onto a carrier. The CMTS 114 may modulate the received data onto a carrier. The splitter/combiner 116 may combine the outputs of the video modulator 112 and the CMTS 114 resulting in a frequency division multiplexed (FDM) signal comprising one or more television channels and/or one or more DOCSIS channels. The FDM signal may be

onto the wide area network (WAN) 118 for distribution to customer premise equipment (CPE). Each of the gateways 120a and 120b may comprise a receive module 150 operable to process the received FDM signal as described below.

[0020] In an example embodiment, each of the gateways 120a and 120b may be operable to transmit, via a module 152, messages to the CMTS 114. For such upstream data, the gateways 120a and 120b may modulate messages (e.g., network management/maintenance messages) onto one or more carriers for transmission via the WAN 118. The splitter/combiner 116 may then convey the message to the CMTS 114. The CMTS 114 may process the messages and, in an example embodiment, adjust transmission parameters (e.g., modulation parameters, transmit power, frequency offsets, etc.) and/or perform other maintenance/management based on the received messages.

[0021] FIG. 1B depicts an example receiver operable to perform spectrum monitoring in accordance with an example embodiment of the invention. Shown in FIG. 1B is a receiver circuit 100 comprising an RF receive front-end module 158, a channelizer module 102, a monitoring module 154, and a data processing module 156.

[0022] The RF receive front-end 158 may be operable to process a received RF signal S to generate a digital signal D. The signal S may be the result of a plurality of television and/or DOCSIS channels being frequency division multiplexed into a single signal. The signal S may occupy a frequency band from  $F_{lo}$  to  $F_{hi}$ . The RF front-end 158 may, for example, amplify, down-convert, filter, and/or digitize the received signal S to generate the digital signal D. Example embodiments of the RF front-end are depicted in FIGs. 2A and 2B.

[0023] The channelizer 102 may be operable to select  $J+1$  bands (represented as  $C_1$ – $C_{J+1}$ ) of the signal S and output each of the selected bands to the monitoring module 154 and/or the data processing module 156, where J is an integer greater than 1. An example

embodiment of the channelizer 102 is depicted in FIG. 3. Each band  $C_j$  may, for example, correspond to the frequency band of one or more television channels. For example, each band  $C_j$  may be an integer multiple of 6MHz (U.S.) or 8 MHz (EU).

[0024] In an example embodiment, the channelizer 102 may be implemented entirely in the digital domain and the channelization may be achieved via one or more digital filtering algorithms and/or other digital signal processing algorithms.

[0025] The monitoring module 154 may be operable to analyze the band  $C_{j+1}$  that it receives from the channelizer 102 to measure/determine characteristics such as, for example, signal power level vs. frequency, delay vs. frequency, phase shift vs. frequency, type and/or amount of modulation, code rate, interference levels, signal to noise ratio, a transfer function of the channel over which the signal was received, an impulse response of the channel over which the signal was received, and/or any other characteristic that may help assess characteristics of the channel over which the signal was received, assess characteristics of the transmitter that sent the signal and/or any otherwise be pertinent to performance of the communication system. The monitoring module may also be operable to generate one or more control signals 160 for configuring the channelizer 102 and/or for configuring the RF front-end 158. Additionally or alternatively, the control signal(s) 160 output by the monitoring module 154 may control the transmission of network management/maintenance messages by the device 150. Such message may comprise, for example, network status updates indicating whether one or more communication parameters of one or more received television or DOCSIS channels are outside acceptable bounds, and/or conveying measured/determined characteristics back to a source of the received signal (e.g., back to a cable headend). In an example embodiment, the monitoring module 174 may be operable to demodulate signals for measuring one or more characteristics such as signal-to-noise ratio, code rate.

[0026] The data processing module 156 may be operable to process the bands  $C_1$ – $C_J$  conveyed to it by the channelizer 102 to recover data present in one or more television channels present in those bands of the signal S. The data processing module 156 may, for example, perform synchronization, equalization, and decoding. The data processing module 156 may output processed data (e.g., MPEG transport stream packets and/or Internet Protocol packets) to end systems 126, perhaps via an interface such as an HDMI interface and/or an Ethernet interface (not shown). The data processing module 156 may also be operable to generate one or more control signals 162 for configuring the channelizer 102 and/or the receive front-end 158.

[0027] The parallel arrangement of the monitoring module 154 and data processing module 156 may enable determination of signal and/or channel characteristics without having to interrupt service to user equipment 126 and 128.

[0028] In an example embodiment, the signal S may be a cable television signal with  $F_{lo} \approx 55\text{MHz}$ ,  $F_{hi} \approx 1002\text{ MHz}$ . In an example embodiment, the signal S may be a MoCA signal with with  $F_{lo} \approx 1150\text{ MHz}$  and  $F_{hi} \approx 2100\text{ MHz}$ . These numbers are purely for illustration and not intended to be limiting.

[0029] In an example embodiment, the signal S may be a satellite television signal such as may be at the input of a LNB, at the output of a LNB, or at the input of a indoor unit (e.g., set top box). In such an embodiment, the front-end 158, channelizer 152, data processing module 154, and/or monitoring module 154 may reside in the indoor unit (e.g., set-top box), outdoor unit (e.g., satellite dish or accompanying components), and/or may be distributed among the indoor unit and outdoor unit of a satellite installation residing at a customer premises. An example of such an embodiment is shown in FIG. 1C.

[0030] In operation of such an example embodiment, the signal S may be amplified, possibly downconverted, and digitized by the RF front-end 158 to generate the signal D. The channelizer 102 may then select J bands of the signal D for output to the data processing module 156. Each of the selected bands  $C_1$ – $C_J$  may, for example, comprise one or more of the cable television channels and/or one or more of the DOCSIS channels that make up the signal S. The data processing module 156 may provide one or more control signals to determine which portion of the signal D is selected for each of the bands  $C_1$ – $C_J$ . The selection may be based, for example, on which television channels are being consumed by end systems 128 and/or whether DOCSIS data is being consumed by end systems 126. The channelizer 102 may also select one band, represented as band  $C_{J+1}$ , to be output to the monitoring module 154. Band  $C_{J+1}$  may comprise any portion or portions (including the entire bandwidth from  $F_{lo}$  to  $F_{hi}$ ) of the signal D. Which portion of the signal S is selected as band  $C_{J+1}$  may, for example, be configured by the monitoring module 154. The data processing module 156 may process one or more of bands  $C_1$ – $C_J$  to recover data on one or more channels (e.g., television and/or DOCSIS channels) present in those bands while the monitoring module 154 may concurrently process band  $C_{J+1}$  to measure/determine characteristics of all or a portion of the signal S between  $f_{lo}$  and  $f_{hi}$ .

[0031] FIG. 1C depicts an example satellite system in accordance with an example embodiment of the invention. Shown in FIG. 1C is a satellite dish assembly 172, and a gateway 196. The subassembly 174 comprises a feed horn 182, an LNB 194, the front-end 158, the channelizer 152, the monitoring module 154, and the data processing module 156. The various modules of the subassembly 174 may reside in one or more housings, on one or more printed circuit boards, and/or one or more integrated circuits (e.g., one or more silicon dice). In another example embodiment, the monitoring module 154 and/or the data processing module 156 may reside in the gateway 196.

[0032] In the example embodiment depicted, the satellite dish assembly 172 comprises a parabolic reflector 176 and a subassembly 174 mounted (e.g., bolted or welded) to a support structure 178 which, in turn, comprises a boom 190 and attaches (e.g., via bolts) to the premises 180 (e.g., to the roof). In another example embodiment, all or a portion of the modules 152, 154, and/or 156 may be mounted to the premises 180 separate from the satellite dish (e.g., connected via wired and/or wireless connections), but may still be part of the “outdoor unit.”

[0033] The gateway 196 may receive data from the satellite dish assembly 172 (via cable(s) 184). The gateway and may transmit data onto and receive data from the WAN 192 (via broadband connection 188). The gateway 196 may transmit data to and receive data from user equipment 128 and 126 (via one or more connections 186).

[0034] FIG. 2A depicts an example RF front-end of a receiver operable to perform spectrum monitoring in accordance with an example embodiment of the invention. The RF front-end 158A shown in FIG. 2A comprises a variable gain amplifier 202, and receive chains  $204_1$ – $204_L$ , where  $L$  is an integer greater than or equal to 1. Each receive chains  $204_l$  may comprise an amplifier module  $210_l$ , a mixer module  $212_l$ , a filter module  $214_l$ , and an analog-to-digital converter (ADC) module  $216_l$ , where  $l$  is an integer between 1 and  $L$ .

[0035] Each amplifier  $210_l$  may be operable to amplify a band  $l$  of the signal  $S$ . Each mixer  $212_l$  may be operable to mix a band  $l$  of the signal  $S$  with a local oscillator signal (not shown) to downconvert the band  $l$  to a lower frequency. Each filter module  $214_l$  may be operable to bandpass filter the band  $l$  to remove/attenuate frequencies outside band  $l$ . Each ADC  $216_l$  may be operable to convert the band  $l$  of the analog signal  $S$  to a corresponding digital representation. Operation of the RF front-end 158 and/or processing of signals generated by the front-end 158, may, for example, be as described

in United States Patent Application Serial No. 13/336,451 entitled “Method and Apparatus for Broadband Data Conversion” which is incorporated by reference herein, as set forth above.

[0036] In an example embodiment, the front-end 158A may reside in a cable gateway such as the cable gateway 120 described above. In an example embodiment, the front-end 158A may reside in satellite gateway/set-top box and/or in an outdoor unit of a satellite reception assembly (e.g., collocated on-chip or on-PCB with a satellite low-noise block downconverter (LNB)).

[0037] FIG. 2B depicts another example RF front-end of a receiver operable to perform spectrum monitoring in accordance with an example embodiment of the invention. The RF front-end 158B shown in FIG. 2B comprises a variable gain amplifier 252, a filter 254, and an ADC 256. Functions performed by the RF front-end 158B may be referred to as “full-spectrum capture” (or “FSC”).

[0038] In the front-end 158B, the entire bandwidth, from  $F_{lo}$  to  $F_{hi}$ , of signal  $S$  may be amplified by the amplifier 252 to generate  $S'$ . The amplified signal  $S'$  may be then filtered by the filter 254 to remove undesired signals outside of  $F_{lo}$  to  $F_{hi}$  and generate signal  $S''$ . The signal  $S''$ , from  $F_{lo}$  to  $F_{hi}$ , may then be digitized by the ADC 256 to generate signal  $D$ . In an example embodiment, the ADC may be as described in United States Patent Application Serial No. 13/485,003 entitled “Multi-layer Time-Interleaved Analog-to-Digital Converter (ADC),” which is incorporated by reference herein, as set forth above.

[0039] In an example embodiment, the ADC 256 may be capable of digitizing a signal  $S$  wherein  $F_{lo}$  to  $F_{hi}$  is 1 GHz or higher. Accordingly, for cable television / DOCSIS, the ADC 256 may be operable to digitize the entire cable downstream (e.g., from ~55MHz to ~1002MHz). Similarly, for satellite television, the ADC 256 may be operable to digitize

the received signal at the input of the LNB, and/or the downconverted signal (e.g., from ~1GHz to ~2GHz) at the output by an LNB.

[0040] FIG. 3 depicts an example channelizer which may be utilized for performing spectrum monitoring in accordance with an example embodiment of the invention. Band selection filters  $302_1$ – $302_J$  of the channelizer 102 may each process the signal D to recover a corresponding one of the J selected bands of the signal D, and output the band on a corresponding one of the ports  $304_1$  to  $304_J$ . A band selection filter  $302_{J+1}$  of the channelizer 102 may process the signal D to recover band  $C_{J+1}$  from the signal D, and output band  $C_{J+1}$  on the port  $304_{J+1}$ . Which band or bands are selected by the filter  $302_{J+1}$  may be configured based on one or more control signals input to the channelizer 102. For example, the value of a parameter k may determine the center frequency of the portion of signal D that is to be selected as  $C_{J+1}$  by the filter  $302_{J+1}$ , and the value of  $\Delta$  may determine the bandwidth of the portion of this signal D that is selected as band  $C_{J+1}$  for output on the port  $304_{J+1}$ . In this manner, all of the signal D between  $F_{lo}$  and  $F_{hi}$  or any portion or portions of the signal D, may be selected for output on the port  $304_{J+1}$ .

[0041] FIG. 4 is a flow chart illustrating example steps for spectrum monitoring in accordance with an example embodiment of the invention. After start step 402, in step 404, the receiver circuit 100 may receive a frequency division multiplexed (FDM) signal comprising one or more channels (e.g., satellite television channels, cable television channels, and/or DOCSIS channels) occupying a frequency band between  $F_{lo}$  and  $F_{hi}$ . In step 406, the received FDM signal is digitized across the full band from  $F_{lo}$  to  $F_{hi}$ . In step 408, the digitized signal is channelized into one or more bands. In step 410, a first one or more of the bands are conveyed to a data processing module. In step 412 a second one or more of the bands are output to a monitoring module. In step 414, the data processing module processes one or more of the first one or more bands to recover data on those

bands while the monitoring module concurrently processes the second one or more bands to determine characteristics of all or a portion of the frequency band from  $F_{lo}$  to  $F_{hi}$ .

[0042] Other embodiments of the invention may provide a non-transitory computer readable medium and/or storage medium, and/or a non-transitory machine readable medium and/or storage medium, having stored thereon, a machine code and/or a computer program having at least one code section executable by a machine and/or a computer, thereby causing the machine and/or computer to perform the steps as described herein for spectrum monitoring

[0043] Accordingly, the present invention may be realized in hardware, software, or a combination of hardware and software. The present invention may be realized in a centralized fashion in at least one computing system, or in a distributed fashion where different elements are spread across several interconnected computing systems. Any kind of computing system or other apparatus adapted for carrying out the methods described herein is suited. A typical combination of hardware and software may be a general-purpose computing system with a program or other code that, when being loaded and executed, controls the computing system such that it carries out the methods described herein. Another typical implementation may comprise an application specific integrated circuit or chip.

[0044] The present invention may also be embedded in a computer program product, which comprises all the features enabling the implementation of the methods described herein, and which when loaded in a computer system is able to carry out these methods. Computer program in the present context means any expression, in any language, code or notation, of a set of instructions intended to cause a system having an information processing capability to perform a particular function either directly or after either or both

of the following: a) conversion to another language, code or notation; b) reproduction in a different material form.

[0045] While the present invention has been described with reference to certain embodiments, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted without departing from the scope of the present invention. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the present invention without departing from its scope. Therefore, it is intended that the present invention not be limited to the particular embodiment disclosed, but that the present invention will include all embodiments falling within the scope of the appended claims.

## CLAIMS

What is claimed is:

1. A system comprising:
  - an analog-to-digital converter operable to digitize a signal spanning an entire television spectrum comprising a plurality of television channels;
  - a signal monitor operable to analyze a signal to determine a characteristic of said signal;
  - a data processor operable to process a television channel to recover content carried on the television channel; and
  - a channelizer operable to:
    - select a first portion of said signal;
    - select a second portion of said signal; and
    - concurrently output said first portion of said signal to said signal monitor and said second portion of said signal to said data processor.
2. The system of claim 1, wherein said first portion of said signal spans said entire television spectrum.
3. A method comprising:
  - performing by one or more circuits:
    - receiving a signal having a bandwidth that spans from a first frequency,  $F_{lo}$ , to a second frequency,  $F_{hi}$ , wherein said signal carries a plurality of channels;
    - digitizing said received signal from  $F_{lo}$  to  $F_{hi}$  to generate a digitized signal;
    - selecting a first portion of said digitized signal;
    - selecting a second portion of said digitized signal; and

concurrently outputting said selected first portion and said selected second portion, wherein:

said selected first portion is output to a signal analyzer for determination of one or more characteristics of the received signal; and

said selected second portion is output to a data processor for recovery of data carried on one or more of said plurality of channels.

4. The method of claim 3, wherein said first portion comprises all of said received signal from  $F_{lo}$  to  $F_{hi}$ .

5. The method of claim 3, comprising:  
analyzing said selected first portion to determine a characteristic of said received signal; and  
reporting said determined characteristic to a source of said received signal.

6. The method of claim 5, wherein said characteristic is one of: signal power vs. frequency, phase vs. frequency, signal-to-noise ratio, peak-to-average ratio, noise levels, bit error rate, and symbol error rate.

7. The method of claim 3, wherein:  
said received signal is a cable television signal; and  
said plurality of channels comprises a plurality of television channels.

8. The method of claim 3, wherein:  
said received signal is a satellite television signal output by a low noise block downconverter; and

said plurality of channels comprises a plurality of television channels.

9. The method of claim 8, wherein said one or more circuits reside in a customer premises satellite reception assembly.

10. The method of claim 3, wherein said one or more circuits reside in a customer premises gateway.

11. The method of claim 3, wherein a bandwidth and/or center frequency of said selected first portion is configurable during operation of said one or more circuits.

12. A system comprising:

one or more circuits that are operable to:

receive a signal having a bandwidth that spans from a first frequency,  $F_{lo}$ , to a second frequency,  $F_{hi}$ , wherein said signal carries a plurality of channels;

digitize said received signal from  $F_{lo}$  to  $F_{hi}$  to generate a digitized signal;

select a first portion of said digitized signal;

select a second portion of said digitized signal; and

concurrently output said selected first portion and said selected second portion, wherein:

said selected first portion is output to a signal analyzer for determination of one or more characteristics of the received signal; and

said selected second portion is output to a data processor for recovery of data carried on one or more of said plurality of channels.

13. The system of claim 12, wherein said first portion comprises all of said received signal from  $F_{lo}$  to  $F_{hi}$ .

14. The system of claim 12, wherein said one or more circuits are operable to: analyze said first portion to determine a characteristic of said first portion; and report said determined characteristic to a source of said received signal.

15. The system of claim 14, wherein said characteristic is one of: signal power vs. frequency, phase vs. frequency, signal-to-noise ratio, peak-to-average ratio, noise levels, bit error rate, and symbol error rate.

16. The system of claim 12, wherein:  
said received signal is a cable television signal; and  
said plurality of channels comprises a plurality of television channels.

17. The system of claim 12, wherein:  
said received signal is a satellite television signal output by a low noise block downconverter; and  
said plurality of channels comprises a plurality of television channels.

18. The system of claim 17, wherein said one or more circuits reside in a customer premises satellite reception assembly.

19. The system of claim 12, wherein said one or more circuits reside in a customer premises gateway.

20. The system of claim 12, wherein a bandwidth and/or center frequency of said selected first portion is configurable during operation of said one or more circuits.

## ABSTRACT

A system, such as a satellite reception assembly or customer premises gateway, may comprise an analog-to-digital converter operable to digitize a signal spanning an entire television spectrum (e.g., cable television spectrum or satellite television spectrum) comprising a plurality of television channels. The system may comprise a signal monitor operable to analyze a signal to determine a characteristic of the signal. The system may comprise a data processor operable to process a television channel to recover content carried on the television channel. The system may comprise a channelizer operable to select first and second portions of the signal, and concurrently output the first portion to the signal monitor and the second portion to the data processor.

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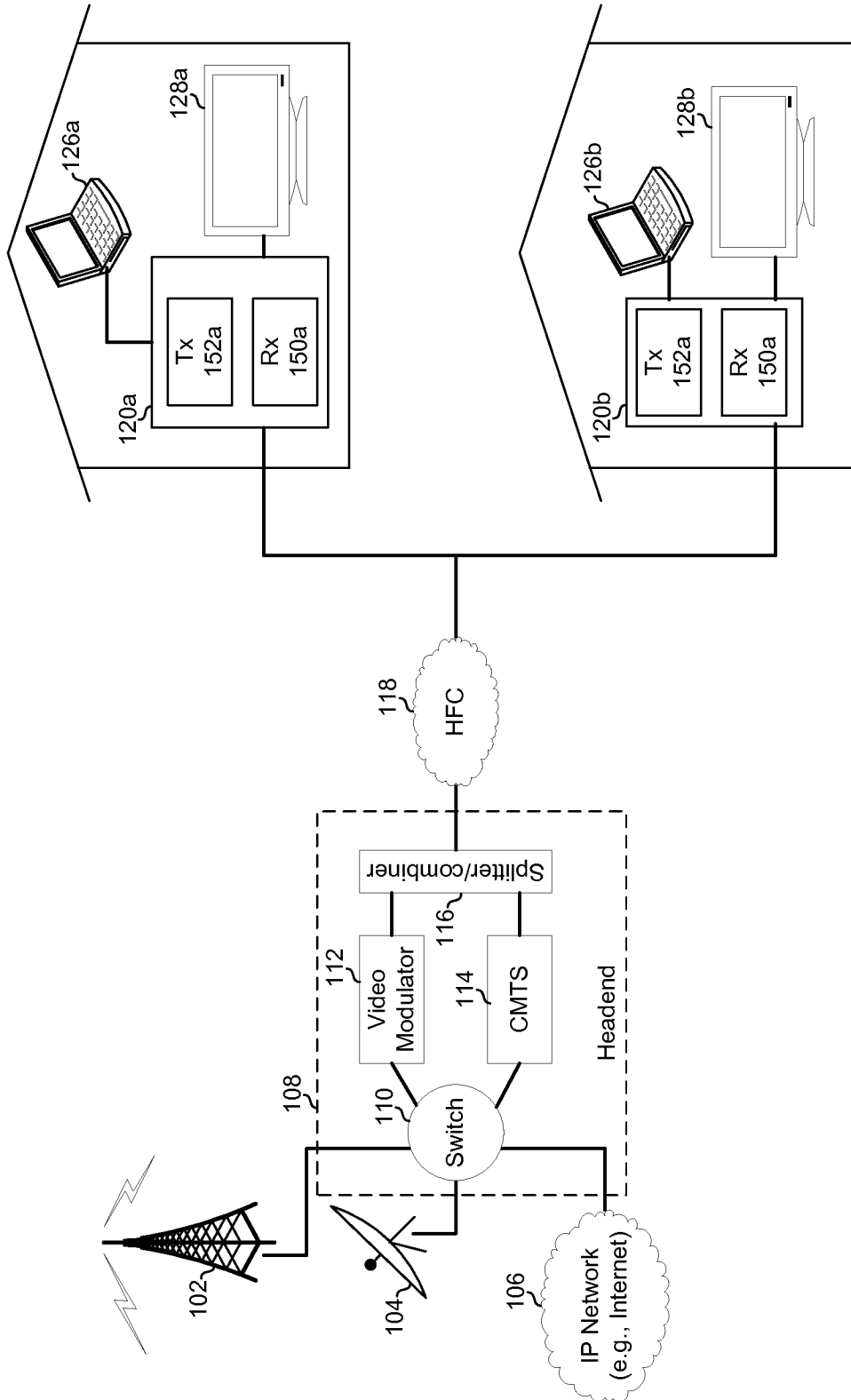


FIG. 1A

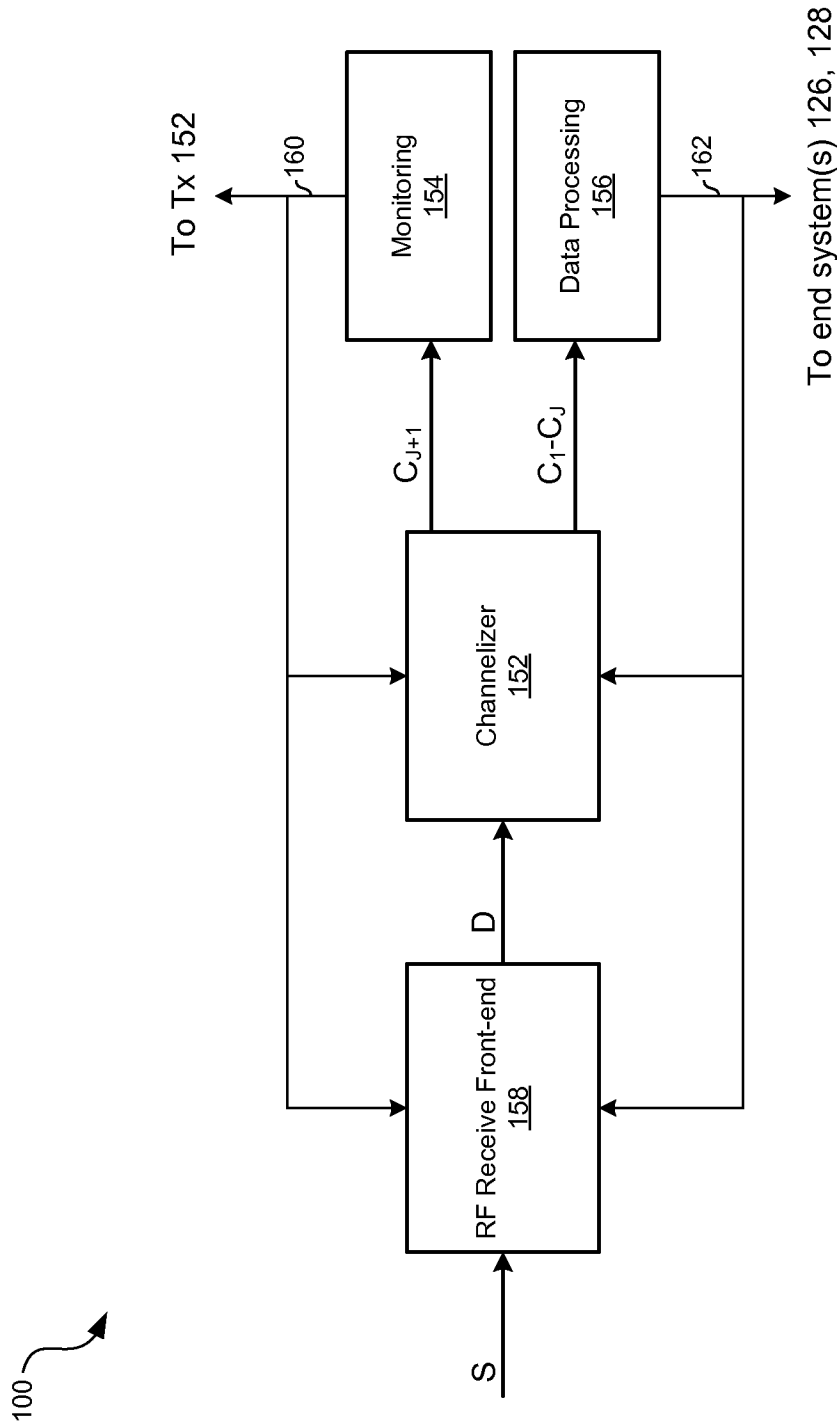


FIG. 1B

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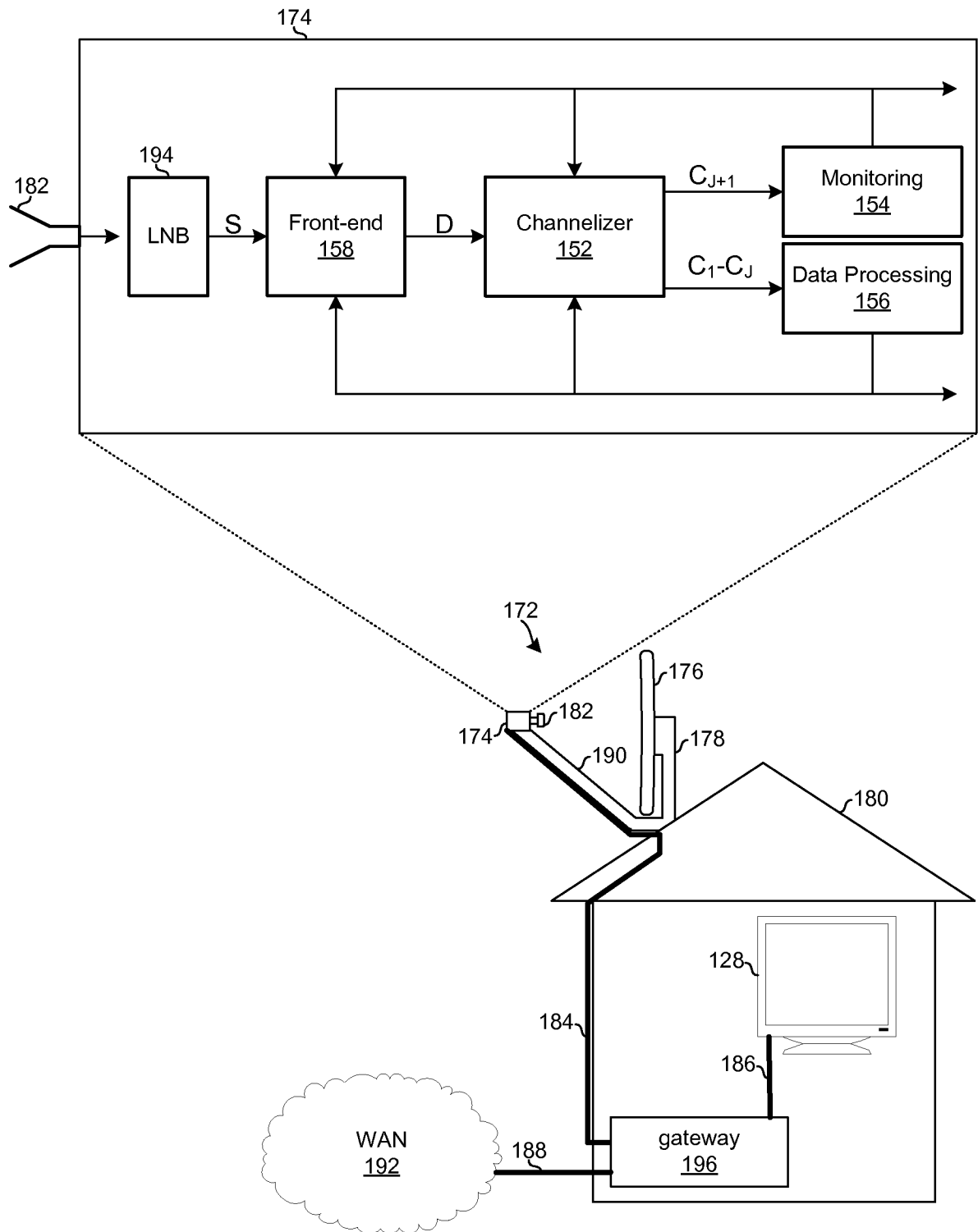


FIG. 1C

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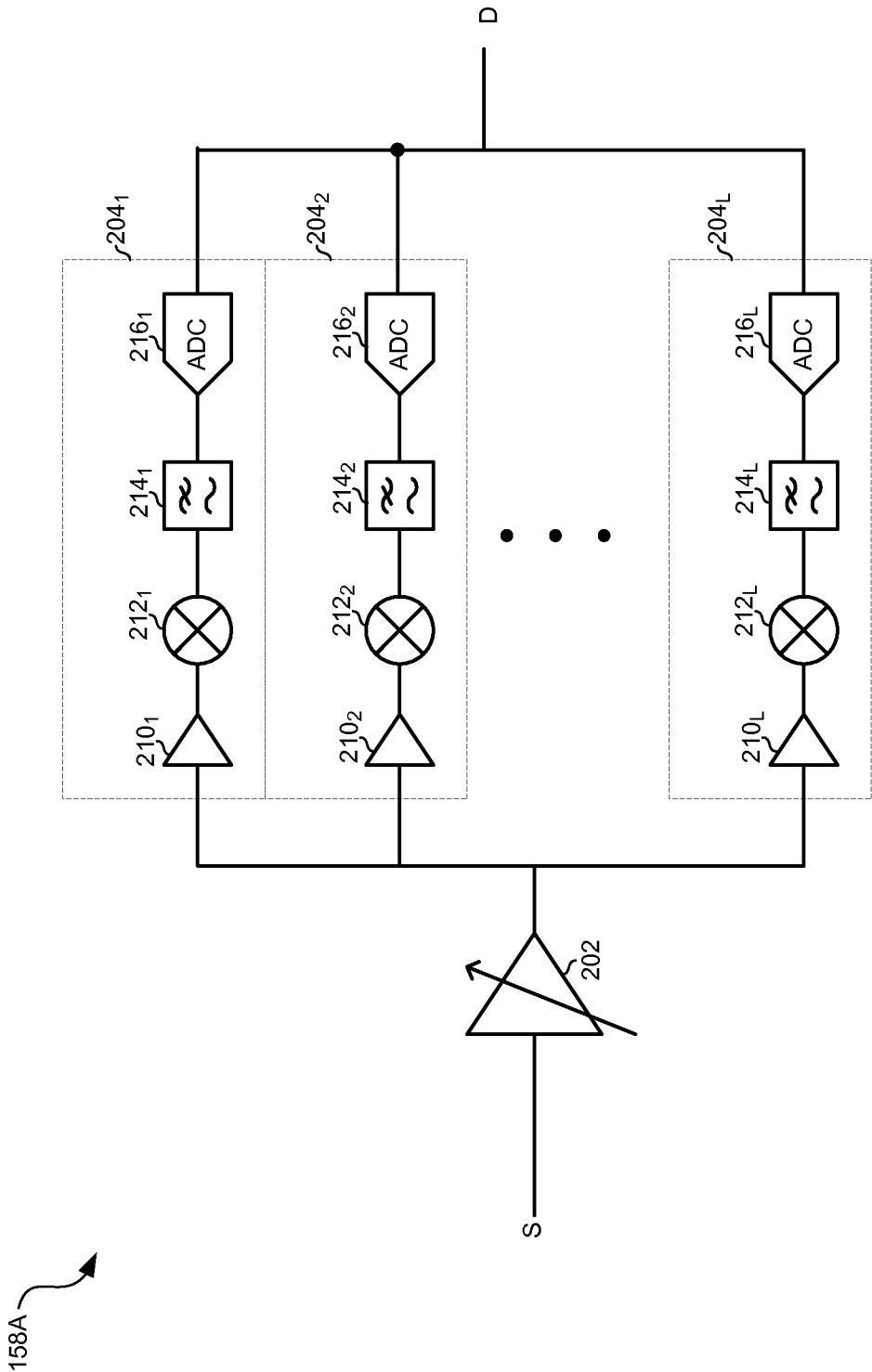


FIG. 2A

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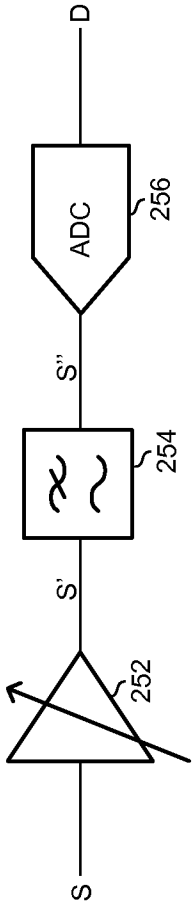


FIG. 2B

158B

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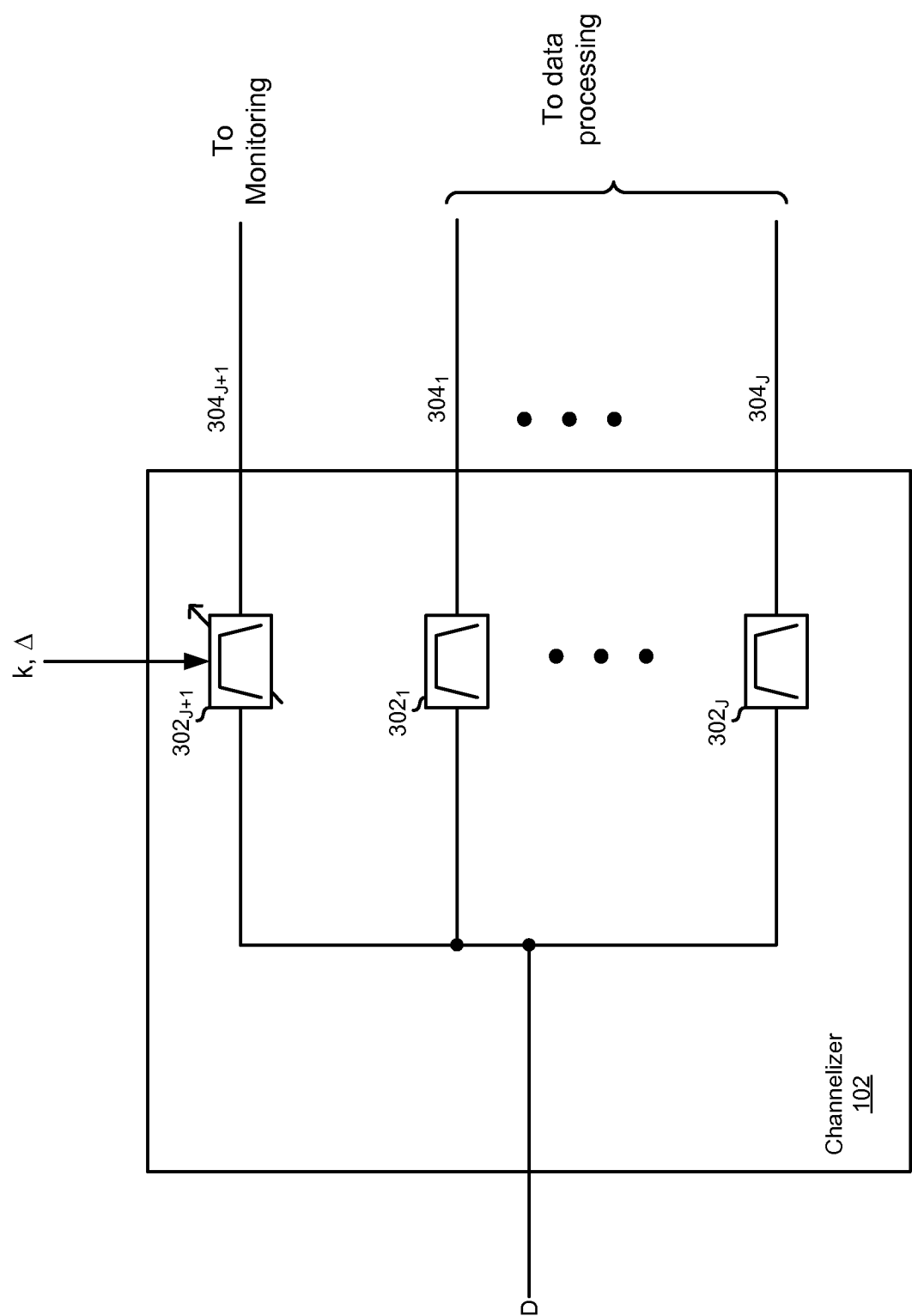


FIG. 3

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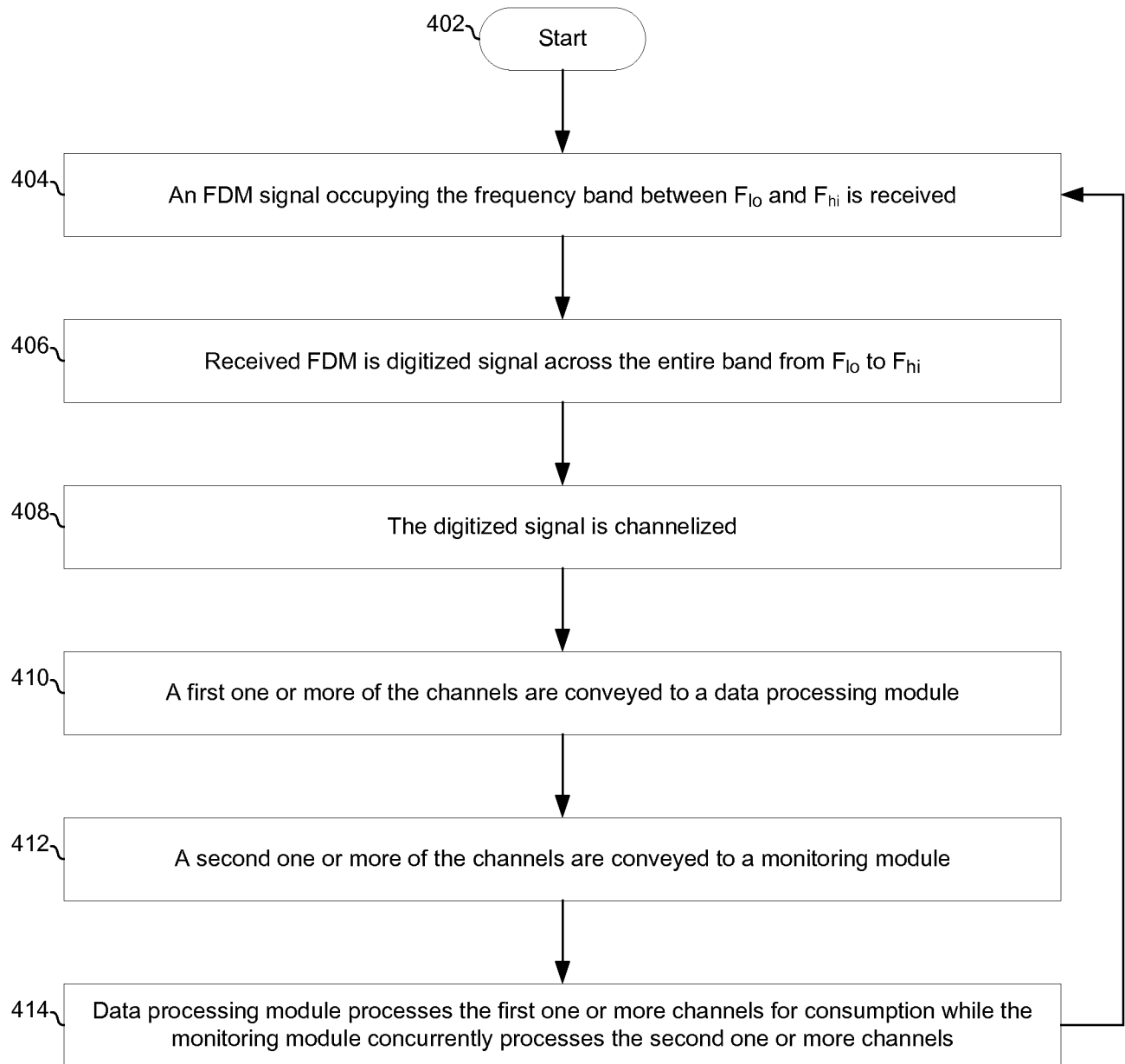


**FIG. 4**

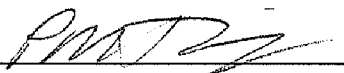
35

Declaration for patent application entitled:  
"Method and Apparatus for Spectrum Monitoring"

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Named inventor:

Full name Patrick Tierney

Inventor's Signature  Date September 7, 2012

Residence 877 Stevens Ave. #4200, Solana Beach, CA 92975 Citizenship USA

Post Office Address N/A

Declaration for patent application entitled:  
"Method and Apparatus for Spectrum Monitoring"

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Named inventor:

Full name Jun HuangInventor's Signature *Jun Huang* Date September 6, 2012Residence SAN DIEGO, CA, U.S. Citizenship CHINAPost Office Address 10563 BLUE GRANITE DR, SAN DIEGO, CA 92127

Docket No: 24351US02

Inventors: Timothy Gallagher, Patrick Tierney, Jun Huang

Serial No:

Filed on:

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am an original, first, and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled "Method and Apparatus for Spectrum Monitoring," the specification of which (check one)?

☒ [X] is attached hereto.

☐ [ ] was filed on \_\_\_\_\_, 20\_\_\_\_ as Application Serial No. \_\_\_\_\_, was amended on \_\_\_\_\_, and issued on \_\_\_\_\_ as U.S. Patent No. \_\_\_\_\_.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information that is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

\_\_\_\_\_  
(Application No.)      (Country)      (Date Filed)

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below:

61/532,098      September 8, 2011  
(Application No.)      (Filing Date)

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application or any international application designating the United States under Title 35, United States Code, §365 listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56, regarding events which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

\_\_\_\_\_  
(Application No.)      (Filing Date)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Named inventor:

Full name: Timothy Gallagher

Inventor's Signature: /Timothy Gallagher/

Date: Sept 7, 2012

Residence (City, State, Country): Encinitas, Ca, USA

Citizenship: USA

Mailing Address: 840 Val Sereno Dr

| Electronic Patent Application Fee Transmittal |          |                                              |        |                      |
|-----------------------------------------------|----------|----------------------------------------------|--------|----------------------|
| Application Number:                           |          |                                              |        |                      |
| Filing Date:                                  |          |                                              |        |                      |
| Title of Invention:                           |          | METHOD AND APPARATUS FOR SPECTRUM MONITORING |        |                      |
| First Named Inventor/Applicant Name:          |          | Timothy Gallagher                            |        |                      |
| Filer:                                        |          | Chad M. Gilles/Laura Foley                   |        |                      |
| Attorney Docket Number:                       |          | 24351 US02                                   |        |                      |
| Filed as Small Entity                         |          |                                              |        |                      |
| Utility under 35 USC 111(a) Filing Fees       |          |                                              |        |                      |
| Description                                   | Fee Code | Quantity                                     | Amount | Sub-Total in USD(\$) |
| Basic Filing:                                 |          |                                              |        |                      |
| Utility filing Fee (Electronic filing)        | 4011     | 1                                            | 95     | 95                   |
| Utility Search Fee                            | 2111     | 1                                            | 310    | 310                  |
| Utility Examination Fee                       | 2311     | 1                                            | 125    | 125                  |
| Pages:                                        |          |                                              |        |                      |
| Claims:                                       |          |                                              |        |                      |
| Miscellaneous-Filing:                         |          |                                              |        |                      |
| Petition:                                     |          |                                              |        |                      |
| Patent-Appeals-and-Interference:              |          |                                              |        |                      |

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| Post-Allowance-and-Post-Issuance: |          |          |        |                      |
| Extension-of-Time:                |          |          |        |                      |
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| Total in USD (\$)                 |          |          |        | 530                  |

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| <b>EFS ID:</b>                              | 13694889                                     |
| <b>Application Number:</b>                  | 13607916                                     |
| <b>International Application Number:</b>    |                                              |
| <b>Confirmation Number:</b>                 | 4054                                         |
| <b>Title of Invention:</b>                  | METHOD AND APPARATUS FOR SPECTRUM MONITORING |
| <b>First Named Inventor/Applicant Name:</b> | Timothy Gallagher                            |
| <b>Customer Number:</b>                     | 23446                                        |
| <b>Filer:</b>                               | Chad M. Gilles/Laura Foley                   |
| <b>Filer Authorized By:</b>                 | Chad M. Gilles                               |
| <b>Attorney Docket Number:</b>              | 24351US02                                    |
| <b>Receipt Date:</b>                        | 10-SEP-2012                                  |
| <b>Filing Date:</b>                         |                                              |
| <b>Time Stamp:</b>                          | 11:13:01                                     |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                  |

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| Payment was successfully received in RAM | \$530           |
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| Deposit Account                          | 130017          |
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| Document Number              | Document Description                                | File Name                            | File Size(Bytes)/ Message Digest          | Multi Part /.zip | Pages (if appl.) |
|------------------------------|-----------------------------------------------------|--------------------------------------|-------------------------------------------|------------------|------------------|
| 1                            | Application Data Sheet                              | 24351US02_ADS.pdf                    | 1031603                                   | no               | 5                |
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|                              | Document Description                                |                                      | Start                                     | End              |                  |
|                              | Specification                                       |                                      | 1                                         | 15               |                  |
|                              | Claims                                              |                                      | 16                                        | 20               |                  |
|                              | Abstract                                            |                                      | 21                                        | 21               |                  |
| Warnings:                    |                                                     |                                      |                                           |                  |                  |
| Information:                 |                                                     |                                      |                                           |                  |                  |
| 3                            | Drawings-only black and white line drawings         | 24351US02_Figs_as_filed.pdf          | 87276                                     | no               | 7                |
|                              |                                                     |                                      | b0875da4bfc128e52c2c6a5b63e1d4f4593a60d66 |                  |                  |
| Warnings:                    |                                                     |                                      |                                           |                  |                  |
| Information:                 |                                                     |                                      |                                           |                  |                  |
| 4                            | Oath or Declaration filed                           | 24351US02_Declaration_executed.pdf   | 667867                                    | no               | 4                |
|                              |                                                     |                                      | ccfd386d743e3e4baa1569506a50c5e74c734326  |                  |                  |
| Warnings:                    |                                                     |                                      |                                           |                  |                  |
| Information:                 |                                                     |                                      |                                           |                  |                  |
| 5                            | Fee Worksheet (SB06)                                | fee-info.pdf                         | 32613                                     | no               | 2                |
|                              |                                                     |                                      | b8461f201b6769f44ad7a43cb69ab21eaa7ff333  |                  |                  |
| Warnings:                    |                                                     |                                      |                                           |                  |                  |
| Information:                 |                                                     |                                      |                                           |                  |                  |
| Total Files Size (in bytes): |                                                     |                                      | 1936886                                   |                  |                  |

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**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**



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| APPLICATION<br>NUMBER | FILING or<br>371(c) DATE | GRP ART<br>UNIT | FIL FEE REC'D | ATTY. DOCKET NO | TOT CLAIMS | IND CLAIMS |
|-----------------------|--------------------------|-----------------|---------------|-----------------|------------|------------|
| 13/607,916            | 09/10/2012               | 2618            | 530           | 24351US02       | 20         | 3          |

CONFIRMATION NO. 4054

23446  
MCANDREWS HELD & MALLOY, LTD  
500 WEST MADISON STREET  
SUITE 3400  
CHICAGO, IL 60661

FILING RECEIPT



Date Mailed: 09/21/2012

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

**Inventor(s)**

Patrick Tierney, Solana Beach, CA;  
Jun Huang, San Diego, CA;  
Timothy Gallagher, Encinitas, CA;

**Applicant(s)**

Patrick Tierney, Solana Beach, CA;  
Jun Huang, San Diego, CA;  
Timothy Gallagher, Encinitas, CA;

**Power of Attorney:** None

**Domestic Priority data as claimed by applicant**

This appln claims benefit of 61/532,098 09/08/2011

**Foreign Applications** (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

**If Required, Foreign Filing License Granted:** 09/18/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/607,916**

**Projected Publication Date:** 03/14/2013

**Non-Publication Request:** No

**Early Publication Request:** No

**\*\* SMALL ENTITY \*\***

**Title**

Method and Apparatus for Spectrum Monitoring

**Preliminary Class**

455

**PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES**

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

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Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

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| <b>PATENT APPLICATION FEE DETERMINATION RECORD</b><br>Substitute for Form PTO-875                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                               |                                  |          |                                    |               | Application or Docket Number<br>13/607,916 |                    |                               |                    |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------|------------------------------------|---------------|--------------------------------------------|--------------------|-------------------------------|--------------------|--------------------|
| <b>APPLICATION AS FILED - PART I</b>                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            |                    |                               |                    |                    |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               | (Column 2)                       |          | SMALL ENTITY                       |               | OR<br>OTHER THAN SMALL ENTITY              |                    |                               |                    |                    |
| FOR                                                                                                                                                                                                                                                                                                                                                                                                        | NUMBER FILED                                                                                                                                                                                                                  | NUMBER EXTRA                     | RATE(\$) | FEE(\$)                            |               | RATE(\$)                                   | FEE(\$)            |                               |                    |                    |
| BASIC FEE<br>(37 CFR 1.16(a), (b), or (c))                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                                                                                                                                                                           | N/A                              | N/A      | 95                                 |               | N/A                                        |                    |                               |                    |                    |
| SEARCH FEE<br>(37 CFR 1.16(k), (l), or (m))                                                                                                                                                                                                                                                                                                                                                                | N/A                                                                                                                                                                                                                           | N/A                              | N/A      | 310                                |               | N/A                                        |                    |                               |                    |                    |
| EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q))                                                                                                                                                                                                                                                                                                                                                           | N/A                                                                                                                                                                                                                           | N/A                              | N/A      | 125                                |               | N/A                                        |                    |                               |                    |                    |
| TOTAL CLAIMS<br>(37 CFR 1.16(j))                                                                                                                                                                                                                                                                                                                                                                           | 20                                                                                                                                                                                                                            | minus 20 = *                     | x 30     | = 0.00                             | OR            |                                            |                    |                               |                    |                    |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h))                                                                                                                                                                                                                                                                                                                                                                     | 3                                                                                                                                                                                                                             | minus 3 = *                      | x 125    | = 0.00                             |               |                                            |                    |                               |                    |                    |
| APPLICATION SIZE FEE<br>(37 CFR 1.16(s))                                                                                                                                                                                                                                                                                                                                                                   | If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). |                                  |          | 0.00                               |               |                                            |                    |                               |                    |                    |
| MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                               |                                  |          | 0.00                               |               |                                            |                    |                               |                    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                  | TOTAL    | 530                                |               | TOTAL                                      |                    |                               |                    |                    |
| * If the difference in column 1 is less than zero, enter "0" in column 2.                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            |                    |                               |                    |                    |
| <b>APPLICATION AS AMENDED - PART II</b>                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            |                    |                               |                    |                    |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               | (Column 2)                       |          | (Column 3)                         |               | SMALL ENTITY                               |                    | OR<br>OTHER THAN SMALL ENTITY |                    |                    |
| AMENDMENT A                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                               | CLAIMS REMAINING AFTER AMENDMENT |          | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE(\$)                                   | ADDITIONAL FEE(\$) |                               | RATE(\$)           | ADDITIONAL FEE(\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Total<br>(37 CFR 1.16(i))                                                                                                                                                                                                     | *                                | Minus    | **                                 | =             | x                                          | =                  | OR                            | x                  | =                  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Independent<br>(37 CFR 1.16(h))                                                                                                                                                                                               | *                                | Minus    | ***                                | =             | x                                          | =                  | OR                            | x                  | =                  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                         |                                  |          |                                    |               |                                            |                    | OR                            |                    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                            | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                                               |                                  |          |                                    |               |                                            |                    | OR                            |                    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                  |          |                                    |               | TOTAL<br>ADD'L FEE                         |                    | OR                            | TOTAL<br>ADD'L FEE |                    |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               | (Column 2)                       |          | (Column 3)                         |               | SMALL ENTITY                               |                    | OR<br>OTHER THAN SMALL ENTITY |                    |                    |
| AMENDMENT B                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                               | CLAIMS REMAINING AFTER AMENDMENT |          | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE(\$)                                   | ADDITIONAL FEE(\$) |                               | RATE(\$)           | ADDITIONAL FEE(\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Total<br>(37 CFR 1.16(i))                                                                                                                                                                                                     | *                                | Minus    | **                                 | =             | x                                          | =                  | OR                            | x                  | =                  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Independent<br>(37 CFR 1.16(h))                                                                                                                                                                                               | *                                | Minus    | ***                                | =             | x                                          | =                  | OR                            | x                  | =                  |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                         |                                  |          |                                    |               |                                            |                    | OR                            |                    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                            | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                                               |                                  |          |                                    |               |                                            |                    | OR                            |                    |                    |
|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                  |          |                                    |               | TOTAL<br>ADD'L FEE                         |                    | OR                            | TOTAL<br>ADD'L FEE |                    |
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3.<br>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".<br>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".<br>The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1. |                                                                                                                                                                                                                               |                                  |          |                                    |               |                                            |                    |                               |                    |                    |

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**Cc:** PAIR\_eOfficeAction@uspto.gov  
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Sep 21, 2012 05:30:08 AM

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| Application | Document     | Mailroom Date | Attorney Docket No. |
|-------------|--------------|---------------|---------------------|
| 13607916    | APP.FILE.REC | 09/21/2012    | 24351US02           |

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I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:



Practitioners associated with the Customer Number:

23,446

OR



Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

| Name | Registration Number | Name | Registration Number |
|------|---------------------|------|---------------------|
|      |                     |      |                     |
|      |                     |      |                     |
|      |                     |      |                     |
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|      |                     |      |                     |
|      |                     |      |                     |

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:



The address associated with Customer Number:

23,446

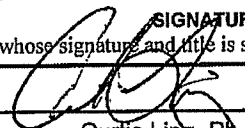
OR

|                                                  |       |     |  |
|--------------------------------------------------|-------|-----|--|
| <input type="checkbox"/> Firm or Individual Name |       |     |  |
| Address                                          |       |     |  |
| City                                             | State | Zip |  |
| Country                                          |       |     |  |
| Telephone                                        | Email |     |  |

Assignee Name and Address:

MaxLinear, Inc.  
2051 Palomar Airport Road, Suite 100  
Carlsbad, CA 92011**A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.****SIGNATURE of Assignee of Record**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

|           |                                                                                     |           |              |
|-----------|-------------------------------------------------------------------------------------|-----------|--------------|
| Signature |  | Date      | 6/20/11      |
| Name      | Curtis Ling, Ph.D.                                                                  | Telephone | 760.692.0711 |
| Title     | Chief Technology Officer                                                            |           |              |

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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## Electronic Acknowledgement Receipt

|                                             |                                              |
|---------------------------------------------|----------------------------------------------|
| <b>EFS ID:</b>                              | 13851271                                     |
| <b>Application Number:</b>                  | 13607916                                     |
| <b>International Application Number:</b>    |                                              |
| <b>Confirmation Number:</b>                 | 4054                                         |
| <b>Title of Invention:</b>                  | Method and Apparatus for Spectrum Monitoring |
| <b>First Named Inventor/Applicant Name:</b> | Patrick Tierney                              |
| <b>Customer Number:</b>                     | 23446                                        |
| <b>Filer:</b>                               | Chad M. Gilles/Laura Foley                   |
| <b>Filer Authorized By:</b>                 | Chad M. Gilles                               |
| <b>Attorney Docket Number:</b>              | 24351US02                                    |
| <b>Receipt Date:</b>                        | 27-SEP-2012                                  |
| <b>Filing Date:</b>                         | 10-SEP-2012                                  |
| <b>Time Stamp:</b>                          | 12:03:14                                     |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                  |

### Payment information:

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|------------------------|----|
| Submitted with Payment | no |
|------------------------|----|

### File Listing:

| Document Number | Document Description | File Name                                        | File Size(Bytes)/<br>Message Digest                | Multi Part /.zip | Pages (if appl.) |
|-----------------|----------------------|--------------------------------------------------|----------------------------------------------------|------------------|------------------|
| 1               |                      | 24351US02_Statement_373b_<br>with_assignment.pdf | 709474<br>82c59b3fdac044370f5f4e7e5d01f5e33c6fc9b8 | yes              | 7                |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                            |              |            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|--------------|------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Multipart Description/PDF files in .zip description</b> |              |            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Document Description</b>                                | <b>Start</b> | <b>End</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Assignee showing of ownership per 37 CFR 3.73.             | 1            | 6          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Power of Attorney                                          | 7            | 7          |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                            |              |            |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                            |              |            |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                            | 709474       |            |
| <p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> <b>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</b></p> |                                                            |              |            |

**STATEMENT UNDER 37 CFR 3.73(b)**Applicant/Patent Owner: Timothy Gallagher, Patrick Tierney, Jun HuangApplication No./Patent No.: 13/607,916Filed/Issue Date: September 10, 2012

Titled:

METHOD AND APPARATUS FOR SPECTRUM MONITORING

MaxLinear, Inc.

, a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;
2. ☐ an assignee of less than the entire right, title, and interest in  
(The extent (by percentage) of its ownership interest is \_\_\_\_\_ %); or
3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy therefore is attached.

**OR**

- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at

Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

2. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at

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3. From: \_\_\_\_\_ To: \_\_\_\_\_

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☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

- ☒ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Chad M. Gilles/

September 27, 2012

Signature

Date

Chad M. Gilles

Attorney

Printed or Typed Name

Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Assignment of rights for patent application entitled:  
"Method and Apparatus for Spectrum Monitoring"

Docket No: 24351US01

Serial No: 13/607,916

Inventors: Timothy Gallagher, Patrick Tierney,  
Jun Huang

Filed on: September 10, 2012

In consideration of One Dollar (\$1.00) and other good and valuable considerations in hand paid, the receipt and sufficiency whereof are hereby acknowledged, each of the undersigned hereby assigns to MaxLinear, Inc. incorporated under the laws of the state of Delaware, its successors and assigns, the entire right, title and interest in the invention or improvements of the undersigned disclosed in an application for Letters Patent of the United States, entitled: "Method and Apparatus for Spectrum Monitoring" and identified as File No. 24351US02, in the offices of McAndrews, Held & Malloy, Ltd., in United States Provisional Patent Application Serial No. 61/532,098 filed on September 8, 2011, and in said application and any and all other applications, both United States and foreign, which the undersigned may file, either solely or jointly with others, on said invention or improvements, and in any and all Letters Patent of the United States and foreign countries, which may be obtained on any of said applications, and in any continuation, continuation-in-part, divisional, re-examination, reissue or extension of such patents, and further assigns to said assignee the priority right provided by the International Convention.

Each of the undersigned hereby authorizes and requests the Commissioner of Patents and Trademarks to issue said Letters Patent to said assignee.

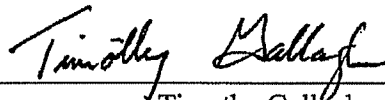
Each of the undersigned hereby authorizes and requests the attorneys of record in said application to insert in this assignment the filing date and serial number of said application when officially known.

Each of the undersigned warrants himself/herself to be the owner of the entire right, title and interest in said invention or improvements and to have the right to make this assignment, and further warrants that there are no outstanding prior assignments, licenses, or other encumbrances on the interest herein assigned.

For said considerations, each of the undersigned hereby agrees, upon the request and at the expense of said assignee, its successors and assigns, to execute any and all continuation, continuation-in-part, divisional, re-examination, extension, and substitute applications for said invention or improvements, and any necessary oath, affidavit or declaration relating thereto, and any application for the reissue, re-examination, or extension of any Letters Patent that may be granted upon said application, and any and all applications and other document for Letters Patent in foreign countries on said invention or improvements, that said assignee, its successors or assigns may deem necessary or expedient, and for the said considerations each of the undersigned authorizes said assignee to apply for patents for said invention or improvements in its own name in such countries where such procedure is proper and further agrees, upon the request of said assignee, its successors and assigns, to cooperate to the best of the ability of the undersigned with said assignee, its successors and assigns, in any proceedings or transactions involving such applications or patents, including the preparation and execution of preliminary statements, giving and producing evidence and performing any and all other acts necessary to obtain said Letters Patent, both United States and foreign, and vest all rights therein hereby conveyed in the assignee, its successors and assigns, whereby said Letters Patent will be held and enjoyed by the said assignee, its successors and assigns, to the full end of the term for which said Letters Patent will be granted, as fully and entirely as the same would have been held and enjoyed by the undersigned if this assignment had not been made.

Assignment of rights for patent application entitled:  
"Method and Apparatus for Spectrum Monitoring"

WITNESS my hand this 11<sup>th</sup> day of September, 2012.



\_\_\_\_\_  
Timothy Gallagher

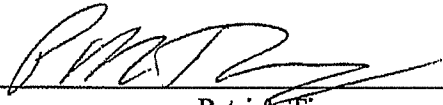
Assignment of rights for patent application entitled:  
"Method and Apparatus for Spectrum Monitoring"

WITNESS my hand this 6<sup>th</sup> day of September, 2012.

  
\_\_\_\_\_  
Jun Huang

Assignment of rights for patent application entitled:  
"Method and Apparatus for Spectrum Monitoring"

WITNESS my hand this 7 day of September, 2012.

  
\_\_\_\_\_  
Patrick Tierney



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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|--------------------|-----------------------|-----------------------|------------------------|
| 13/607,916         | 09/10/2012            | Patrick Tierney       | 24351US02              |

23446  
MCANDREWS HELD & MALLOY, LTD  
500 WEST MADISON STREET  
SUITE 3400  
CHICAGO, IL 60661

**CONFIRMATION NO. 4054**  
**POA ACCEPTANCE LETTER**



Date Mailed: 10/03/2012

## NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/27/2012.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/zabaha/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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Oct 03, 2012 05:27:52 AM

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| Application | Document | Mailroom Date | Attorney Docket No. |
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| 13607916    | N570     | 10/03/2012    | 24351US02           |

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|--------------------|-----------------------|-----------------------|------------------------|
| 13/607,916         | 09/10/2012            | Patrick Tierney       | 24351US02              |

**CONFIRMATION NO. 4054**

## PUBLICATION NOTICE



\*OC000000059852795\*

23446  
MCANDREWS HELD & MALLOY, LTD  
500 WEST MADISON STREET  
SUITE 3400  
CHICAGO, IL 60661

**Title:**Method and Apparatus for Spectrum Monitoring

**Publication No.**US-2013-0063608-A1

**Publication Date:**03/14/2013

## NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at [www.uspto.gov](http://www.uspto.gov). The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at [www.uspto.gov](http://www.uspto.gov) using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

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|-------------|----------|---------------|---------------------|
| 13607916    | NTC.PUB  | 03/14/2013    | 24351US02           |

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

13/607,916

09/10/2012

Patrick Tierney

24351US02

4054

23446 7590 01/16/2014  
MCANDREWS HELD & MALLOY, LTD  
500 WEST MADISON STREET  
SUITE 3400  
CHICAGO, IL 60661

EXAMINER

NATNAEL, PAULO M

ART UNIT

PAPER NUMBER

2422

NOTIFICATION DATE

DELIVERY MODE

01/16/2014

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mhmpto@mcandrews-ip.com

|                              |                                      |                                       |                                                  |
|------------------------------|--------------------------------------|---------------------------------------|--------------------------------------------------|
| <b>Office Action Summary</b> | <b>Application No.</b><br>13/607,916 | <b>Applicant(s)</b><br>TIERNEY ET AL. |                                                  |
|                              | <b>Examiner</b><br>PAULOS M. NATNAEL | <b>Art Unit</b><br>2422               | <b>AIA (First Inventor to File) Status</b><br>No |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims\*

- 5) ☒ Claim(s) 1-20 is/are pending in the application.  
5a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-4, 7-13 and 16-20 is/are rejected.
- 8) ☒ Claim(s) 5, 6, 14 and 15 is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

\* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 9/10/12 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

#### Certified copies:

- a) ☐ All    b) ☐ Some\*\*    c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                               |                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                   | 3) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)<br>Paper No(s)/Mail Date _____ | 4) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

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

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of 35 U.S.C. 112(b):  
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims **1-11** are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

In claim **1**, line 4, it is unclear if the claimed "said signal" is referring to "a signal" analyzed by the signal monitor or the digitized signal (converted by the analog-to-digital converter), rendering the claim vague and indefinite.

Likewise, in lines 9-11, the claimed "said signal" reference is not clear to which signal it is referring to, which, again, renders the claim indefinite.

4. For the purpose of this rejection, the claimed **said signal** is assumed to be referring to the **digitized signal**.

***Claim Rejections - 35 USC § 102***

5. 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 –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims **12-13,16-20** are rejected under pre-AIA 35 U.S.C. 102b as being anticipated by **Zhang, US 6,038,435**.

Considering claim **12**, Zhang discloses all claimed subject matter, note;

a) receive a signal having a bandwidth that spans from a first frequency, Flo, to a second frequency, Fhi, wherein said signal carries a plurality of channels, **is met by** RF Analog receiver and down converter 2, Fig.1;

b) digitize said received signal from Flo to Fhi to generate a digitized signal, **is met by ADC 5, Fig.1**.

c) select a first portion of said digitized signal; select a second portion of said digitized signal, **is met by** Channelizers 9-11, Fig.1. (See, e.g., col. 2, line 62 to col. 3, line 5).

d) concurrently output said selected first portion and said selected second portion, wherein: said selected first portion is output to a signal analyzer for determination of one or more characteristics of the received signal; and said selected second portion is

Art Unit: 2422

output to a data processor for recovery of data carried on one or more of said plurality of channels, **is met by** channelizer banks 9,10 and 11, Fig.1 which output to the Baseband DSP 12,13,14.

As to claim **13**, see rejection of claim 12;

Regarding claim **16**, see rejection of claim 12;

Considering claim **17**, Zhang discloses down converter 3 and 4;

Regarding claims **18 and 19**, see rejection of claim 1 and 3.

As to claim **20**, see the disclosure on *col. 3, lines 17-22*

### ***Claim Rejections - 35 USC § 103***

7. 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.

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8. Claims **1-4 and 7-11** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Zhang, US 6,038,435**.

Considering claim **1**, Zhang discloses the following claimed subject matter, note;

a) an analog-to-digital converter operable to digitize a signal...**is met by** ADC 5, Fig.1;

b) a signal monitor operable to analyze a signal to determine a characteristic of said signal, **is met by** Baseband DSP 12,13,14, Fig.1.

c) a data processor operable to process..., **is met by** Baseband DSP 12,13,14, Fig.1.

d) a channelizer operable to: select a first portion of said signal; select a second portion of said signal; and concurrently output said first portion of said signal to said signal monitor and said second portion of said signal to said data processor, **is met by** channelizer banks 9,10 and 11, Fig.1;

**Except for;**

e) the claimed spanning an entire television spectrum comprising a plurality of television channels...a television channel to recover content carried on the television channel;

Regarding e) the ADC 5 in Zhang is utilized to digitize a signal used in the telephone system. However, as is well known in the art, the same analog-to-digital converter can be used in digitizing any type of signals including RF signals received through an antenna such as television signal. Therefore, it would have been obvious to

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the skilled in the art at the time the invention was made to modify the system of Zhang by incorporating/utilizing the same ADC 5 to digitize the received RF television signals. Doing so would save the cost of acquiring or building another or separate ADC for different signal.

Regarding claim **2**, see rejection of claim 1.

Claim **3** is a method claim of claim 1 and therefore claim 3 is rejected for the same reasons as in claim 1.

Regarding claim **4**, see rejection of claim 1.

Regarding claim **7**, see rejection of claim 1 and 3.

Regarding claim **8**, Zhang discloses down converter 3 and 4, Fig.1;

Regarding claim **9 and 10**, see rejection of claim 1 and 3.

As to claim **11**, see the disclosure on col. 3, lines 17-22.

***Allowable Subject Matter***

9. Claims **5-6** and **14-15** 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***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**McHenry, US 20100105332 A1** discloses method and system for dynamic spectrum access using detection periods.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAULO M. NATNAEL whose telephone number is (571)272-7354. The examiner can normally be reached on 8AM-4:30PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jefferey Harold can be reached on (571) 272-7519. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2422

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/PAULOS M NATNAEL/  
Primary Examiner, Art Unit 2422

PMN  
January 12, 2014

|                                   |                                       |  |                                                              |             |
|-----------------------------------|---------------------------------------|--|--------------------------------------------------------------|-------------|
| <b>Notice of References Cited</b> | Application/Control No.<br>13/607,916 |  | Applicant(s)/Patent Under<br>Reexamination<br>TIERNEY ET AL. |             |
|                                   | Examiner<br>PAULOS M. NATNAEL         |  | Art Unit<br>2422                                             | Page 1 of 1 |

#### U.S. PATENT DOCUMENTS

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Name                 | Classification |
|---|---|--------------------------------------------------|-----------------|----------------------|----------------|
| * | A | US-6,813,320 B1                                  | 11-2004         | Claxton et al.       | 375/316        |
| * | B | US-7,197,685 B2                                  | 03-2007         | Limberg, Allen LeRoy | 714/756        |
| * | C | US-2010/0105332 A1                               | 04-2010         | McHenry et al.       | 455/62         |
| * | D | US-2012/0163518 A1                               | 06-2012         | Reddy et al.         | 375/350        |
| * | E | US-8,588,339 B2                                  | 11-2013         | Birru et al.         | 375/316        |
| * | F | US-8,611,483 B2                                  | 12-2013         | Zhu et al.           | 375/349        |
| * | G | US-6,038,435                                     | 03-2000         | Zhang, Jin-Yun       | 455/234.1      |
|   | H | US-                                              |                 |                      |                |
|   | I | US-                                              |                 |                      |                |
|   | J | US-                                              |                 |                      |                |
|   | K | US-                                              |                 |                      |                |
|   | L | US-                                              |                 |                      |                |
|   | M | US-                                              |                 |                      |                |

#### FOREIGN PATENT DOCUMENTS

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Country | Name | Classification |
|---|---|--------------------------------------------------|-----------------|---------|------|----------------|
|   | N |                                                  |                 |         |      |                |
|   | O |                                                  |                 |         |      |                |
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|   | R |                                                  |                 |         |      |                |
|   | S |                                                  |                 |         |      |                |
|   | T |                                                  |                 |         |      |                |

#### NON-PATENT DOCUMENTS

| * |   | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
|---|---|-------------------------------------------------------------------------------------------|
|   | U |                                                                                           |
|   | V |                                                                                           |
|   | W |                                                                                           |
|   | X |                                                                                           |

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

EAST Search History

EAST Search History (Prior Art)

| Ref # | Hits   | Search Query                                                                                                      | DBs                                                                     | Default Operator | Plurals | Time Stamp          |
|-------|--------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------|---------|---------------------|
| S1    | 135209 | (analog-to-digital near convert\$3)                                                                               | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2013/12/17<br>08:32 |
| S2    | 1963   | S1 and (television TV) adj2<br>channel                                                                            | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2013/12/17<br>08:34 |
| S3    | 139    | S2 and signal near analyz\$3                                                                                      | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2013/12/17<br>08:34 |
| S4    | 4      | S3 and (channeliz\$3 select\$3<br>switch\$3) near5 ((second another<br>additional) near (portion part<br>region)) | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2013/12/17<br>08:36 |
| S5    | 139    | S3 and (channeliz\$3 select\$3<br>switch\$3)                                                                      | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2013/12/17<br>08:37 |
| S6    | 10     | S5 and ((second another<br>additional) near (portion part))                                                       | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2013/12/17<br>08:38 |
| S7    | 8      | S6 and (first near (portion part))                                                                                | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2013/12/17<br>08:39 |
| S8    | 4      | S7 not S4                                                                                                         | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR               | ON      | 2013/12/17<br>08:39 |
| S9    | 2      | "20120163518"                                                                                                     | US-PGPUB;<br>USPAT; USOCR;                                              | OR               | ON      | 2013/12/17<br>09:33 |

|     |        |                                                               |                                                                         |    |     |                     |
|-----|--------|---------------------------------------------------------------|-------------------------------------------------------------------------|----|-----|---------------------|
|     |        |                                                               | FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB                               |    |     |                     |
| S10 | 1      | ((("8611483") or<br>("20120309337"))).PN.                     | USPAT; USOCR                                                            | OR | OFF | 2013/12/17<br>09:34 |
| S11 | 2      | ((("8611483") or<br>("20120309337"))).PN.                     | US-PGPUB;<br>USPAT; USOCR                                               | OR | OFF | 2013/12/17<br>09:34 |
| S12 | 109396 | spectrum near5 (check\$3<br>monitor\$3 detect\$3 determin\$5) | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2014/01/11<br>15:31 |
| S13 | 7899   | S12 and channel near5 (select\$3<br>choos\$3 multiplex\$3)    | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2014/01/11<br>15:32 |
| S14 | 1175   | S12 same channel near5 (select\$3<br>choos\$3 multiplex\$3)   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2014/01/11<br>15:33 |
| S15 | 131    | S14 and "analog-to-digital" near2<br>conver\$4                | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2014/01/11<br>15:34 |
| S16 | 172    | S14 and (("analog-to-digital" near2<br>conver\$4) ADC)        | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2014/01/11<br>15:34 |
| S17 | 30     | S16 and (first second) near2<br>(portion region area part)    | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2014/01/11<br>15:35 |
| S18 | 7      | S17 and (tv television) near<br>channel                       | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2014/01/11<br>15:35 |
| S19 | 13     | S17 and (tv television) near2<br>channel                      | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON  | 2014/01/11<br>15:35 |
| S20 | 15     | S17 and (tv television broadcast\$3)<br>near2 channel         | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;                        | OR | ON  | 2014/01/11<br>15:35 |

|     |        |                                                                   |                                                                         |    |    |                     |
|-----|--------|-------------------------------------------------------------------|-------------------------------------------------------------------------|----|----|---------------------|
|     |        |                                                                   | DERWENT;<br>IBM_TDB                                                     |    |    |                     |
| S21 | 981339 | data adj process\$3                                               | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2014/01/11<br>16:07 |
| S22 | 66646  | data adj process\$3 and recovery                                  | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2014/01/11<br>16:07 |
| S23 | 13057  | data adj processor and recovery                                   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2014/01/11<br>16:08 |
| S24 | 88     | S23 and signal adj2 analyzer                                      | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2014/01/11<br>16:08 |
| S25 | 32     | S24 and (("analog-to-digital" near2<br>conver\$4) ADC digitiz\$3) | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2014/01/11<br>16:09 |
| S26 | 8      | S25 and (plural\$3 multi\$3) near2<br>channel                     | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2014/01/11<br>16:10 |
| S27 | 6      | S25 and (plural\$3 multi\$3) adj2<br>channel                      | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2014/01/11<br>16:10 |
| S28 | 192    | channelizer same digitiz\$3                                       | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2014/01/12<br>11:40 |
| S29 | 2      | S28 and signal adj monitor\$3                                     | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2014/01/12<br>11:40 |
| S30 | 55     | S28 and monitor\$3                                                | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;                        | OR | ON | 2014/01/12<br>11:41 |

|     |    |                                                                                                                                                                 |                                                                         |    |    |                     |
|-----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|----|----|---------------------|
|     |    |                                                                                                                                                                 | DERWENT;<br>IBM_TDB                                                     |    |    |                     |
| S31 | 2  | S30 and (first second) adj2 (portion<br>part)                                                                                                                   | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2014/01/12<br>11:41 |
| S32 | 3  | S30 and recover\$3 near2 content                                                                                                                                | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2014/01/12<br>11:42 |
| S33 | 3  | S30 and recover\$3 near5 content                                                                                                                                | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2014/01/12<br>11:43 |
| S34 | 4  | S30 and recover\$3 with content                                                                                                                                 | US-PGPUB;<br>USPAT; USOCR;<br>FPRS; EPO;<br>JPO;<br>DERWENT;<br>IBM_TDB | OR | ON | 2014/01/12<br>11:43 |
| S35 | 40 | ("5029162"   "5128958"  <br>"5134631"   "5276685"  <br>"5301364"   "5465406"  <br>"5469115"   "5566201"  <br>"5662688"   "5745531").PN. OR<br>("6038435").URPN. | US-PGPUB;<br>USPAT; USOCR                                               | OR | ON | 2014/01/12<br>11:46 |
| S36 | 3  | S35 and channeliz\$3                                                                                                                                            | US-PGPUB;<br>USPAT; USOCR                                               | OR | ON | 2014/01/12<br>11:59 |

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CONFIRMATION NO. 4054

|                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                   |                               |                                                                                                                                                                                                                                                                           |                                         |                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------|
| <b>SERIAL NUMBER</b><br>13/607,916                                                                                                                                                                                                                                                                                                                                        | <b>FILING or 371(c) DATE</b><br>09/10/2012<br><b>RULE</b>                                                         | <b>CLASS</b><br>348           | <b>GROUP ART UNIT</b><br>2422                                                                                                                                                                                                                                             | <b>ATTORNEY DOCKET NO.</b><br>24351US02 |                                |
| <b>APPLICANTS</b><br><b>INVENTORS</b><br>Patrick Tierney, Solana Beach, CA;<br>Jun Huang, San Diego, CA;<br>Timothy Gallagher, Encinitas, CA;<br><b>** CONTINUING DATA *****</b><br>This appln claims benefit of 61/532,098 09/08/2011<br><b>** FOREIGN APPLICATIONS *****</b><br><b>** IF REQUIRED, FOREIGN FILING LICENSE GRANTED *** SMALL ENTITY **</b><br>09/18/2012 |                                                                                                                   |                               |                                                                                                                                                                                                                                                                           |                                         |                                |
| Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>Verified and /PAULOS M<br>NATNAEL/<br>Acknowledged Examiner's Signature                                                                                             | <input type="checkbox"/> Met after Allowance<br>Initials                                                          | <b>STATE OR COUNTRY</b><br>CA | <b>SHEETS DRAWINGS</b><br>7                                                                                                                                                                                                                                               | <b>TOTAL CLAIMS</b><br>20               | <b>INDEPENDENT CLAIMS</b><br>3 |
| <b>ADDRESS</b><br>MCANDREWS HELD & MALLOY, LTD<br>500 WEST MADISON STREET<br>SUITE 3400<br>CHICAGO, IL 60661<br>UNITED STATES                                                                                                                                                                                                                                             |                                                                                                                   |                               |                                                                                                                                                                                                                                                                           |                                         |                                |
| <b>TITLE</b><br>Method and Apparatus for Spectrum Monitoring                                                                                                                                                                                                                                                                                                              |                                                                                                                   |                               |                                                                                                                                                                                                                                                                           |                                         |                                |
| <b>FILING FEE RECEIVED</b><br>530                                                                                                                                                                                                                                                                                                                                         | FEES: Authority has been given in Paper<br>No. _____ to charge/credit DEPOSIT ACCOUNT<br>No. _____ for following: |                               | <input type="checkbox"/> All Fees<br><input type="checkbox"/> 1.16 Fees (Filing)<br><input type="checkbox"/> 1.17 Fees (Processing Ext. of time)<br><input type="checkbox"/> 1.18 Fees (Issue)<br><input type="checkbox"/> Other _____<br><input type="checkbox"/> Credit |                                         |                                |

|                                                                                                              |                                                |                                                                      |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------|
| <b>Search Notes</b><br><br> | <b>Application/Control No.</b><br><br>13607916 | <b>Applicant(s)/Patent Under Reexamination</b><br><br>TIERNEY ET AL. |
|                                                                                                              | <b>Examiner</b><br><br>PAULOS M NATNAEL        | <b>Art Unit</b><br><br>2422                                          |

| CPC- SEARCHED |      |          |
|---------------|------|----------|
| Symbol        | Date | Examiner |
|               |      |          |

| CPC COMBINATION SETS - SEARCHED |      |          |
|---------------------------------|------|----------|
| Symbol                          | Date | Examiner |
|                                 |      |          |

| US CLASSIFICATION SEARCHED |                      |         |          |
|----------------------------|----------------------|---------|----------|
| Class                      | Subclass             | Date    | Examiner |
| 348                        | 192,725,572,731,729, | 1/12/14 | pmn      |
| 455                        | 234.1,136,138,234.2, | 1/12/14 | pmn      |
| 375                        | 349,350,316,         | 1/12/14 | pmn      |
|                            | (key-word search)    |         |          |

| SEARCH NOTES                        |         |          |
|-------------------------------------|---------|----------|
| Search Notes                        | Date    | Examiner |
| EAST, Inventor search on PALM, eDAN | 1/12/14 | pmn      |

| INTERFERENCE SEARCH     |                         |      |          |
|-------------------------|-------------------------|------|----------|
| US Class/<br>CPC Symbol | US Subclass / CPC Group | Date | Examiner |
|                         |                         |      |          |

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| Application | Document | Mailroom Date | Attorney Docket No. |
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| 13607916    | CTNF     | 01/16/2014    | 24351US02           |
|             | 892      | 01/16/2014    | 24351US02           |

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
(Attorney Docket No. 24351US02)

In the Application of:

Patrick Tierney et al.

Serial No.: 13/607,916

Filed: September 10, 2012

Entitled: METHOD AND APPARATUS  
FOR SPECTRUM MONITORING

Examiner: NATNAEL, Paulos M.

Art Unit: 2422

Confirmation No.: 4054

Customer No.: 23446

**RESPONSE UNDER 37 C.F.R. § 1.111**

This paper responds to the non-final office action mailed January 16, 2014 ("Office Action") in the above-identified application ("Instant Application"). The Applicant respectfully requests entry of the following amendments and consideration of the following remarks.

**I. CONTENTS OF THIS CORRESPONDENCE**

The listing of claims begins on page 2 of this paper.

Remarks/Arguments begin on page 6 of this paper.

## II. LISTING OF CLAIMS

1. (Currently Amended) A system comprising:  
an analog-to-digital converter operable to digitize a signal spanning an entire television spectrum comprising a plurality of television channels, said digitization resulting in a digitized signal;  
a signal monitor operable to:  
analyze said digitized signal to determine a characteristic of said digitized signal; and  
report said determined characteristic to a source of said received signal;  
a data processor operable to process a television channel to recover content carried on the television channel; and  
a channelizer operable to:  
select a first portion of said digitized signal;  
select a second portion of said digitized signal; and  
concurrently output said first portion of said digitized signal to said signal monitor and said second portion of said digitized signal to said data processor.
2. (Original) The system of claim 1, wherein said first portion of said signal spans said entire television spectrum.
3. (Currently Amended) A method comprising:  
performing by one or more circuits:  
receiving a signal having a bandwidth that spans from a first frequency,  $F_{lo}$ , to a second frequency,  $F_{hi}$ , wherein said signal carries a plurality of channels;  
digitizing said received signal from  $F_{lo}$  to  $F_{hi}$  to generate a digitized signal;  
selecting a first portion of said digitized signal;  
selecting a second portion of said digitized signal; and

concurrently outputting said selected first portion and said selected second portion, wherein:

said selected first portion is output to a signal analyzer ~~for which~~ analyzes said selected first portion to determination of one or more characteristics of the received signal, and which reports said determined one or more characteristics to a source of said received signal; and

said selected second portion is output to a data processor for recovery of data carried on one or more of said plurality of channels.

4. (Original) The method of claim 3, wherein said first portion comprises all of said received signal from  $F_{lo}$  to  $F_{hi}$ .

5. (Cancelled)

6. (Currently Amended) The method of claim 3[[5]], wherein said one or more characteristics is one of: signal power vs. frequency, phase vs. frequency, signal-to-noise ratio, peak-to-average ratio, noise levels, bit error rate, and symbol error rate.

7. (Original) The method of claim 3, wherein:  
said received signal is a cable television signal; and  
said plurality of channels comprises a plurality of television channels.

8. (Original) The method of claim 3, wherein:  
said received signal is a satellite television signal output by a low noise block downconverter; and  
said plurality of channels comprises a plurality of television channels.

9. (Original) The method of claim 8, wherein said one or more circuits reside in a customer premises satellite reception assembly.

10. (Original) The method of claim 3, wherein said one or more circuits reside in a customer premises gateway.

11. (Original) The method of claim 3, wherein a bandwidth and/or center frequency of said selected first portion is configurable during operation of said one or more circuits.

12. (Currently Amended) A system comprising:  
one or more circuits that are operable to:

receive a signal having a bandwidth that spans from a first frequency,  $F_{lo}$ , to a second frequency,  $F_{hi}$ , wherein said signal carries a plurality of channels;  
digitize said received signal from  $F_{lo}$  to  $F_{hi}$  to generate a digitized signal;  
select a first portion of said digitized signal;  
select a second portion of said digitized signal; and  
concurrently output said selected first portion and said selected second portion, wherein:

said selected first portion is output to a signal analyzer that is operable to for analyze said first portion to determination of one or more characteristics of the received signal said first portion, and that is operable to report said determined one or more characteristics to a source of said received signal; and

said selected second portion is output to a data processor for recovery of data carried on one or more of said plurality of channels.

13. (Original) The system of claim 12, wherein said first portion comprises all of said received signal from  $F_{lo}$  to  $F_{hi}$ .

14. (Cancelled)

15. (Currently Amended) The system of claim 12[[14]], wherein said one or more characteristics is one of: signal power vs. frequency, phase vs. frequency, signal-to-noise ratio, peak-to-average ratio, noise levels, bit error rate, and symbol error rate.

16. (Original) The system of claim 12, wherein:  
said received signal is a cable television signal; and  
said plurality of channels comprises a plurality of television channels.

17. (Original) The system of claim 12, wherein:  
said received signal is a satellite television signal output by a low noise block downconverter; and  
said plurality of channels comprises a plurality of television channels.

18. (Original) The system of claim 17, wherein said one or more circuits reside in a customer premises satellite reception assembly.

19. (Original) The system of claim 12, wherein said one or more circuits reside in a customer premises gateway.

20. (Original) The system of claim 12, wherein a bandwidth and/or center frequency of said selected first portion is configurable during operation of said one or more circuits.

### **III. REMARKS / ARGUMENTS**

Claims 1–3 stand rejected under 35 U.S.C. § 112(b).

Claims 12–13, 16–20 stand rejected under 35 U.S.C. § 102(b) based on US6038435 (Zhang).

Claims 1–4 and 7–11 stand rejected under 35 U.S.C. § 103(a) based on Zhang.

Claims 5–6 and 14–15 stand allowable but objected to as being dependent on a rejected base claim.

Applicant respectfully traverses the rejections. Nevertheless, to expedite disposition of the Instant Application, independent claims 1, 3, and 12 are amended to recite limitations substantially similar to limitations previously presented in allowable claims 5 and 14. Accordingly, claims 1, 3, and 12 are in condition for allowance. Claims 2, 4, 6–11, 13, 15–20 are also in condition for allowance at least because each depends from one of claims 1, 3, and 12.

#### IV. CONCLUSION

In addition to the statements addressed above, the Office Action makes various statements regarding the claims and the cited references that are now moot in light of the above. Thus, the Applicant will not address such statements at the present time. However, the Applicant expressly reserves the right to challenge such statements in the future should the need arise (e.g., if such statement should become relevant by appearing in a rejection of any current or future claim or be relied upon in any proceeding involving this application or a corresponding patent).

Based on at least the foregoing, the Applicant respectfully submits that claims 1–4, 6–13, and 15–20 are in condition for allowance. If the Examiner disagrees, but believes a telephonic interview could help expedite disposition of the Instant Application, the Examiner is encouraged to telephone the undersigned at (312) 775-8033.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

A Notice of Allowance is courteously solicited.

Respectfully submitted,

Date: April 10, 2014

/Chad M. Gilles/  
Chad M. Gilles  
Registration No. 60,590  
Representative for Applicant

McAndrews, Held & Malloy, Ltd.  
500 West Madison Street, 34th Floor  
Chicago, Illinois 60661  
(312) 775-8000

## Electronic Acknowledgement Receipt

|                                             |                                              |
|---------------------------------------------|----------------------------------------------|
| <b>EFS ID:</b>                              | 18726576                                     |
| <b>Application Number:</b>                  | 13607916                                     |
| <b>International Application Number:</b>    |                                              |
| <b>Confirmation Number:</b>                 | 4054                                         |
| <b>Title of Invention:</b>                  | Method and Apparatus for Spectrum Monitoring |
| <b>First Named Inventor/Applicant Name:</b> | Patrick Tierney                              |
| <b>Customer Number:</b>                     | 23446                                        |
| <b>Filer:</b>                               | Chad M. Gilles/Laura Foley                   |
| <b>Filer Authorized By:</b>                 | Chad M. Gilles                               |
| <b>Attorney Docket Number:</b>              | 24351US02                                    |
| <b>Receipt Date:</b>                        | 10-APR-2014                                  |
| <b>Filing Date:</b>                         | 10-SEP-2012                                  |
| <b>Time Stamp:</b>                          | 13:32:59                                     |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                  |

### Payment information:

|                        |    |
|------------------------|----|
| Submitted with Payment | no |
|------------------------|----|

### File Listing:

| Document Number | Document Description | File Name                           | File Size(Bytes)/<br>Message Digest               | Multi Part /.zip | Pages (if appl.) |
|-----------------|----------------------|-------------------------------------|---------------------------------------------------|------------------|------------------|
| 1               |                      | 24351US02_OA_16JAN2014_Response.pdf | 37098<br>3f9b6b1931f8a1a77bf3d7473793f8a2ad11319c | yes              | 7                |

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Amendment/Req. Reconsideration-After Non-Final Reject | 1     | 1   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Claims                                                | 2     | 5   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Applicant Arguments/Remarks Made in an Amendment      | 6     | 7   |
| Warnings:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                       |       |     |
| Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                       |       |     |
| Total Files Size (in bytes):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                       | 37098 |     |
| <p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p> |                                                       |       |     |



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
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www.uspto.gov

## NOTICE OF ALLOWANCE AND FEE(S) DUE

23446 7590 05/14/2014  
MCANDREWS HELD & MALLOY, LTD  
500 WEST MADISON STREET  
SUITE 3400  
CHICAGO, IL 60661

EXAMINER

NATNAEL, PAULOS M

ART UNIT

PAPER NUMBER

2422

DATE MAILED: 05/14/2014

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

13/607,916

09/10/2012

Patrick Tierney

24351US02

4054

TITLE OF INVENTION: METHOD AND APPARATUS FOR SPECTRUM MONITORING

| APPLN. TYPE    | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE   |
|----------------|---------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | SMALL         | \$480         | \$0                 | \$0                  | \$480            | 08/14/2014 |

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

### HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
Commissioner for Patents  
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Alexandria, Virginia 22313-1450  
or Fax (571)-273-2885**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

23446 7590 05/14/2014  
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SUITE 3400  
CHICAGO, IL 60661

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

|                    |
|--------------------|
| (Depositor's name) |
| (Signature)        |
| (Date)             |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 13/607,916      | 09/10/2012  | Patrick Tierney      | 24351US02           | 4054             |

TITLE OF INVENTION: METHOD AND APPARATUS FOR SPECTRUM MONITORING

| APPLN. TYPE    | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE   |
|----------------|---------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | SMALL         | \$480         | \$0                 | \$0                  | \$480            | 08/14/2014 |

| EXAMINER         | ART UNIT | CLASS-SUBCLASS |
|------------------|----------|----------------|
| NATNAEL, PAULO M | 2422     | 348-192000     |

|                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</b><br><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.<br><input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. <b>Use of a Customer Number is required.</b> | <b>2. For printing on the patent front page, list</b><br>(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,<br>(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. <div>                     1 _____<br/>                     2 _____<br/>                     3 _____                 </div> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## **3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)**

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE \_\_\_\_\_ (B) RESIDENCE: (CITY and STATE OR COUNTRY) \_\_\_\_\_

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

|                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>4a. The following fee(s) are submitted:</b><br><input type="checkbox"/> Issue Fee<br><input type="checkbox"/> Publication Fee (No small entity discount permitted)<br><input type="checkbox"/> Advance Order - # of Copies _____ | <b>4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)</b><br><input type="checkbox"/> A check is enclosed.<br><input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.<br><input type="checkbox"/> The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form). |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**5. Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

**NOTE:** Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

**NOTE:** If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

**NOTE:** Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

**NOTE:** This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_ Registration No. \_\_\_\_\_



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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 13/607,916      | 09/10/2012  | Patrick Tierney      | 24351US02           | 4054             |

23446 7590 05/14/2014  
MCANDREWS HELD & MALLOY, LTD  
500 WEST MADISON STREET  
SUITE 3400  
CHICAGO, IL 60661

EXAMINER

NATNAEL, PAULO M

ART UNIT PAPER NUMBER

2422

DATE MAILED: 05/14/2014

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

## OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

### Privacy Act Statement

**The Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

|                               |                                      |                                       |                                                  |
|-------------------------------|--------------------------------------|---------------------------------------|--------------------------------------------------|
| <b>Notice of Allowability</b> | <b>Application No.</b><br>13/607,916 | <b>Applicant(s)</b><br>TIERNEY ET AL. |                                                  |
|                               | <b>Examiner</b><br>PAULOS M. NATNAEL | <b>Art Unit</b><br>2422               | <b>AIA (First Inventor to File) Status</b><br>No |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 4/10/14.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1-4,6-13,15-20, renumbered as 1-18, respectively. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

**Certified copies:**

- a) ☐ All    b) ☐ Some    \*c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.  
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |                                                                                                            |                                                                           |
|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 5. <input type="checkbox"/> Examiner's Amendment/Comment                  |
| 2. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date ____     | 6. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 7. <input type="checkbox"/> Other ____.                                   |
| 4. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date ____.                      |                                                                           |

/PAULOS M NATNAEL/  
Primary Examiner, Art Unit 2422

EAST Search History

EAST Search History (Prior Art)

| Ref # | Hits | Search Query                         | DBs                                                      | Default Operator | Plurals | Time Stamp       |
|-------|------|--------------------------------------|----------------------------------------------------------|------------------|---------|------------------|
| L1    | 2549 | spectrum near monitor\$3             | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR               | ON      | 2014/05/04 13:14 |
| L2    | 461  | 1 and (tv television broadcast\$3)   | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR               | ON      | 2014/05/04 13:14 |
| L3    | 21   | 2 and channeliz\$3                   | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR               | ON      | 2014/05/04 13:15 |
| L5    | 9    | 3 and (report\$3 (send\$3 adj back)) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR               | ON      | 2014/05/04 13:28 |
| L6    | 12   | 3 not 5                              | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR               | ON      | 2014/05/04 13:32 |

EAST Search History (Interference)

| Ref # | Hits | Search Query                                             | DBs         | Default Operator | Plurals | Time Stamp       |
|-------|------|----------------------------------------------------------|-------------|------------------|---------|------------------|
| L7    | 1158 | 348/19\$.ccls.                                           | USPAT; UPAD | OR               | ON      | 2014/05/04 13:38 |
| L8    | 0    | 7 and channeliz\$3                                       | USPAT; UPAD | OR               | ON      | 2014/05/04 13:38 |
| L9    | 4    | 7 and spectrum near monitor\$3                           | USPAT; UPAD | OR               | ON      | 2014/05/04 13:39 |
| L10   | 1    | 7 and digitiz\$5 with (first second) adj2 (portion part) | USPAT; UPAD | OR               | ON      | 2014/05/04 13:40 |

5/ 4/ 2014 1:56:21 PM

C:\Users\pnatnael\Documents\EAST\Workspaces\13607916.wsp

|                                                                                                                 |                                            |                                                                  |  |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------|--|
| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>13607916 | <b>Applicant(s)/Patent Under Reexamination</b><br>TIERNEY ET AL. |  |
|                                                                                                                 | <b>Examiner</b><br>PAULO M NATNAEL         | <b>Art Unit</b><br>2422                                          |  |

| CPC    |  |    |   |      |      |            |
|--------|--|----|---|------|------|------------|
| Symbol |  |    |   |      | Type | Version    |
| H04L   |  | 43 | / | 08   | A    | 2013-01-01 |
| H04N   |  | 17 | / | 00   | I    | 2013-01-01 |
| H04L   |  | 12 | / | 66   | F    | 2013-01-01 |
| H04B   |  | 17 | / | 0042 | A    | 2013-01-01 |
|        |  |    | / |      |      |            |
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| CPC Combination Sets |      |     |         |         |
|----------------------|------|-----|---------|---------|
| Symbol               | Type | Set | Ranking | Version |
|                      |      |     |         |         |
|                      |      |     |         |         |

|                                                                                                   |  |                                    |                        |
|---------------------------------------------------------------------------------------------------|--|------------------------------------|------------------------|
| NONE<br><br>(Assistant Examiner) _____ (Date) _____                                               |  | <b>Total Claims Allowed:</b><br>18 |                        |
| /PAULOS M NATNAEL/<br>Primary Examiner.Art Unit 2422<br><br>(Primary Examiner) _____ (Date) _____ |  | O.G. Print Claim(s)<br>1           | O.G. Print Figure<br>2 |



|                                                                                                                 |                                            |                                                                  |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------|
| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>13607916 | <b>Applicant(s)/Patent Under Reexamination</b><br>TIERNEY ET AL. |
|                                                                                                                 | <b>Examiner</b><br>PAULO M NATNAEL         | <b>Art Unit</b><br>2422                                          |

| <input type="checkbox"/> <b>Claims renumbered in the same order as presented by applicant</b> <input type="checkbox"/> <b>CPA</b> <input type="checkbox"/> <b>T.D.</b> <input type="checkbox"/> <b>R.1.47</b> |          |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|
| Final                                                                                                                                                                                                         | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original |
| 1                                                                                                                                                                                                             | 1        | 15    | 17       |       |          |       |          |       |          |       |          |       |          |       |          |
| 2                                                                                                                                                                                                             | 2        | 16    | 18       |       |          |       |          |       |          |       |          |       |          |       |          |
| 3                                                                                                                                                                                                             | 3        | 17    | 19       |       |          |       |          |       |          |       |          |       |          |       |          |
| 4                                                                                                                                                                                                             | 4        | 18    | 20       |       |          |       |          |       |          |       |          |       |          |       |          |
|                                                                                                                                                                                                               | 5        |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| 5                                                                                                                                                                                                             | 6        |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| 6                                                                                                                                                                                                             | 7        |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| 7                                                                                                                                                                                                             | 8        |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| 8                                                                                                                                                                                                             | 9        |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| 9                                                                                                                                                                                                             | 10       |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| 10                                                                                                                                                                                                            | 11       |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| 11                                                                                                                                                                                                            | 12       |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| 12                                                                                                                                                                                                            | 13       |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
|                                                                                                                                                                                                               | 14       |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| 13                                                                                                                                                                                                            | 15       |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| 14                                                                                                                                                                                                            | 16       |       |          |       |          |       |          |       |          |       |          |       |          |       |          |

|                                                                                                   |  |                                    |                        |
|---------------------------------------------------------------------------------------------------|--|------------------------------------|------------------------|
| NONE<br><br>(Assistant Examiner) _____ (Date) _____                                               |  | <b>Total Claims Allowed:</b><br>18 |                        |
| /PAULOS M NATNAEL/<br>Primary Examiner.Art Unit 2422<br><br>(Primary Examiner) _____ (Date) _____ |  | O.G. Print Claim(s)<br>1           | O.G. Print Figure<br>2 |

|                                                                                                                        |                                                |                                                                      |
|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------|
| <b><i>Index of Claims</i></b><br><br> | <b>Application/Control No.</b><br><br>13607916 | <b>Applicant(s)/Patent Under Reexamination</b><br><br>TIERNEY ET AL. |
|                                                                                                                        | <b>Examiner</b><br><br>PAULOS M NATNAEL        | <b>Art Unit</b><br><br>2422                                          |

|   |                 |   |                   |   |                     |   |                 |
|---|-----------------|---|-------------------|---|---------------------|---|-----------------|
| ✓ | <b>Rejected</b> | - | <b>Cancelled</b>  | N | <b>Non-Elected</b>  | A | <b>Appeal</b>   |
| = | <b>Allowed</b>  | ÷ | <b>Restricted</b> | I | <b>Interference</b> | O | <b>Objected</b> |

| <input type="checkbox"/> <b>Claims renumbered in the same order as presented by applicant</b> |          |            | <input type="checkbox"/> <b>CPA</b> |  |  | <input type="checkbox"/> <b>T.D.</b> |  |  | <input type="checkbox"/> <b>R.1.47</b> |  |  |
|-----------------------------------------------------------------------------------------------|----------|------------|-------------------------------------|--|--|--------------------------------------|--|--|----------------------------------------|--|--|
| CLAIM                                                                                         |          | DATE       |                                     |  |  |                                      |  |  |                                        |  |  |
| Final                                                                                         | Original | 05/04/2014 |                                     |  |  |                                      |  |  |                                        |  |  |
| 1                                                                                             | 1        | =          |                                     |  |  |                                      |  |  |                                        |  |  |
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| 4                                                                                             | 4        | =          |                                     |  |  |                                      |  |  |                                        |  |  |
|                                                                                               | 5        | -          |                                     |  |  |                                      |  |  |                                        |  |  |
| 5                                                                                             | 6        | =          |                                     |  |  |                                      |  |  |                                        |  |  |
| 6                                                                                             | 7        | =          |                                     |  |  |                                      |  |  |                                        |  |  |
| 7                                                                                             | 8        | =          |                                     |  |  |                                      |  |  |                                        |  |  |
| 8                                                                                             | 9        | =          |                                     |  |  |                                      |  |  |                                        |  |  |
| 9                                                                                             | 10       | =          |                                     |  |  |                                      |  |  |                                        |  |  |
| 10                                                                                            | 11       | =          |                                     |  |  |                                      |  |  |                                        |  |  |
| 11                                                                                            | 12       | =          |                                     |  |  |                                      |  |  |                                        |  |  |
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|                                                                                               | 14       | -          |                                     |  |  |                                      |  |  |                                        |  |  |
| 13                                                                                            | 15       | =          |                                     |  |  |                                      |  |  |                                        |  |  |
| 14                                                                                            | 16       | =          |                                     |  |  |                                      |  |  |                                        |  |  |
| 15                                                                                            | 17       | =          |                                     |  |  |                                      |  |  |                                        |  |  |
| 16                                                                                            | 18       | =          |                                     |  |  |                                      |  |  |                                        |  |  |
| 17                                                                                            | 19       | =          |                                     |  |  |                                      |  |  |                                        |  |  |
| 18                                                                                            | 20       | =          |                                     |  |  |                                      |  |  |                                        |  |  |

|                                                                                                              |                                                |                                                                      |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------|
| <b>Search Notes</b><br><br> | <b>Application/Control No.</b><br><br>13607916 | <b>Applicant(s)/Patent Under Reexamination</b><br><br>TIERNEY ET AL. |
|                                                                                                              | <b>Examiner</b><br><br>PAULOS M NATNAEL        | <b>Art Unit</b><br><br>2422                                          |

| CPC- SEARCHED |      |          |
|---------------|------|----------|
| Symbol        | Date | Examiner |
|               |      |          |

| CPC COMBINATION SETS - SEARCHED |      |          |
|---------------------------------|------|----------|
| Symbol                          | Date | Examiner |
|                                 |      |          |

| US CLASSIFICATION SEARCHED |                      |         |          |
|----------------------------|----------------------|---------|----------|
| Class                      | Subclass             | Date    | Examiner |
| 348                        | 192,725,572,731,729, | 1/12/14 | pmn      |
| 455                        | 234.1,136,138,234.2, | 1/12/14 | pmn      |
| 375                        | 349,350,316,         | 1/12/14 | pmn      |
|                            | (key-word search)    |         |          |
| Updated Search             | " "                  | 5/4/14  | pmn      |

| SEARCH NOTES                        |         |          |
|-------------------------------------|---------|----------|
| Search Notes                        | Date    | Examiner |
| EAST, Inventor search on PALM, eDAN | 1/12/14 | pmn      |
| " "                                 | 5/4/14  | pmn      |

| INTERFERENCE SEARCH     |                         |        |          |
|-------------------------|-------------------------|--------|----------|
| US Class/<br>CPC Symbol | US Subclass / CPC Group | Date   | Examiner |
| 348                     | 192                     | 5/4/14 | pmn      |

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**To:** mhmpato@mcandrews-ip.com,,  
**From:** PAIR\_eOfficeAction@uspto.gov  
**Cc:** PAIR\_eOfficeAction@uspto.gov  
**Subject:** Private PAIR Correspondence Notification for Customer Number 23446

May 14, 2014 05:36:58 AM

Dear PAIR Customer:

MCANDREWS HELD & MALLOY, LTD  
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SUITE 3400  
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UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 23446 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

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| Application | Document | Mailroom Date | Attorney Docket No. |
|-------------|----------|---------------|---------------------|
| 13607916    | NOA      | 05/14/2014    | 24351US02           |

To view your correspondence online or update your email addresses, please visit us anytime at <https://sportal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at [EBC@uspto.gov](mailto:EBC@uspto.gov) with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE  
PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

# **PART B - FEE(S) TRANSMITTAL**

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
**or Fax (571)-273-2885**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

23446 7590 05/14/2014  
**MCANDREWS HELD & MALLOY, LTD**  
**500 WEST MADISON STREET**  
**SUITE 3400**  
**CHICAGO, IL 60661**

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

## **Certificate of Mailing or Transmission via EFS**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

|                         |                    |
|-------------------------|--------------------|
| <b>Chad M. Gilles</b>   | (Depositor's name) |
| <b>/Chad M. Gilles/</b> | (Signature)        |
| <b>June 16, 2014</b>    | (Date)             |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 13/607,916      | 09/10/2012  | Patrick Tierney      | 24351US02           | 4054             |

TITLE OF INVENTION: METHOD AND APPARATUS FOR SPECTRUM MONITORING

| APPLN. TYPE    | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE   |
|----------------|---------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | SMALL         | \$480         | \$0                 | \$0                  | \$480            | 08/14/2014 |

| EXAMINER           | ART UNIT | CLASS-SUBCLASS |
|--------------------|----------|----------------|
| NATNAEL, PAULO S M | 2422     | 348-192000     |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 McAndrews, Held & Malloy, Ltd.
- 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

MaxLinear, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Carlsbad, CA

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☒ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☒ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 13-0017 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Chad M. Gilles/

Date June 16, 2014

Typed or printed name Chad M. Gilles

Registration No. 60,590

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
(Attorney Docket No. 24351US02)**

In the Application of:

Patrick Tierney et al.

Serial No. 13/607,916

Filed: Sept. 10, 2012

For: METHOD AND APPARATUS FOR  
SPECTRUM MONITORING

Examiner: NATNAEL, Paulos M.

Group Art Unit: 2422

Confirmation No. 4054

**AMENDMENT AFTER ALLOWANCE PURSUANT TO 37 CFR § 1.312**

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

Dear Sir:

This paper is submitted concurrently with the issue fee and responds to the Notice of Allowance mailed May 14, 2014 in the above-identified application. Applicant respectfully requests entry of the following remarks in the record and entry of the following claim amendments pursuant to 37 C.F.R. § 1.312.

## AMENDMENTS TO THE CLAIMS

### Listing of claims:

1. (Currently Amended) A system comprising:
  - an analog-to-digital converter operable to digitize a received signal spanning an entire television spectrum comprising a plurality of television channels, said digitization resulting in a digitized signal;
  - a signal monitor operable to:
    - analyze said digitized signal to determine a characteristic of said digitized signal; and
    - report said determined characteristic to a source of said received signal;
  - a data processor operable to process a television channel to recover content carried on the television channel; and
  - a channelizer operable to:
    - select a first portion of said digitized signal;
    - select a second portion of said digitized signal; and
    - concurrently output said first portion of said digitized signal to said signal monitor and said second portion of said digitized signal to said data processor.
2. (Currently Amended) The system of claim 1, wherein said first portion of said digitized signal spans said entire television spectrum.
3. (Previously Presented) A method comprising:
  - performing by one or more circuits:
    - receiving a signal having a bandwidth that spans from a first frequency,  $F_{lo}$ , to a second frequency,  $F_{hi}$ , wherein said signal carries a plurality of channels;

digitizing said received signal from  $F_{lo}$  to  $F_{hi}$  to generate a digitized signal;  
selecting a first portion of said digitized signal;  
selecting a second portion of said digitized signal; and  
concurrently outputting said selected first portion and said selected second portion, wherein:

said selected first portion is output to a signal analyzer which analyzes said selected first portion to determine one or more characteristics of the received signal, and which reports said determined one or more characteristics to a source of said received signal; and

said selected second portion is output to a data processor for recovery of data carried on one or more of said plurality of channels.

4. (Original) The method of claim 3, wherein said first portion comprises all of said received signal from  $F_{lo}$  to  $F_{hi}$ .

5. (Cancelled)

6. (Previously Presented) The method of claim 3, wherein said one or more characteristics is one of: signal power vs. frequency, phase vs. frequency, signal-to-noise ratio, peak-to-average ratio, noise levels, bit error rate, and symbol error rate.

7. (Original) The method of claim 3, wherein:  
said received signal is a cable television signal; and  
said plurality of channels comprises a plurality of television channels.

8. (Original) The method of claim 3, wherein:

said received signal is a satellite television signal output by a low noise block downconverter; and

said plurality of channels comprises a plurality of television channels.

9. (Original) The method of claim 8, wherein said one or more circuits reside in a customer premises satellite reception assembly.

10. (Original) The method of claim 3, wherein said one or more circuits reside in a customer premises gateway.

11. (Original) The method of claim 3, wherein a bandwidth and/or center frequency of said selected first portion is configurable during operation of said one or more circuits.

12. (Previously Presented) A system comprising:

one or more circuits that are operable to:

receive a signal having a bandwidth that spans from a first frequency,  $F_{lo}$ , to a second frequency,  $F_{hi}$ , wherein said signal carries a plurality of channels;

digitize said received signal from  $F_{lo}$  to  $F_{hi}$  to generate a digitized signal;

select a first portion of said digitized signal;

select a second portion of said digitized signal; and

concurrently output said selected first portion and said selected second portion, wherein:

said selected first portion is output to a signal analyzer that is operable to analyze said first portion to determine one or more characteristics of said first portion, and that is operable to report said

determined one or more characteristics to a source of said received signal;  
and

said selected second portion is output to a data processor for  
recovery of data carried on one or more of said plurality of channels.

13. (Original) The system of claim 12, wherein said first portion comprises all of  
said received signal from  $F_{lo}$  to  $F_{hi}$ .

14. (Cancelled)

15. (Previously Presented) The system of claim 12, wherein said one or more  
characteristics is one of: signal power vs. frequency, phase vs. frequency, signal-to-noise  
ratio, peak-to-average ratio, noise levels, bit error rate, and symbol error rate.

16. (Original) The system of claim 12, wherein:  
said received signal is a cable television signal; and  
said plurality of channels comprises a plurality of television channels.

17. (Original) The system of claim 12, wherein:  
said received signal is a satellite television signal output by a low noise block  
downconverter; and  
said plurality of channels comprises a plurality of television channels.

18. (Original) The system of claim 17, wherein said one or more circuits reside in  
a customer premises satellite reception assembly.

19. (Original) The system of claim 12, wherein said one or more circuits reside in a customer premises gateway.

20. (Original) The system of claim 12, wherein a bandwidth and/or center frequency of said selected first portion is configurable during operation of said one or more circuits.

**REMARKS**

In the Notice of Allowance mailed on May 14, 2014, claims 1-4, 6-13 and 15-20 were allowed. The Applicant thanks the Examiner for positive consideration of the claims. The Applicant does not believe the above claim amendments should have any impact on the allowability of the claims as the amendments merely clarify antecedents.

Respectfully submitted,

Dated: June 16, 2014

By: /Chad M. Gilles/  
Chad M. Gilles  
Reg. No. 60,590

McAndrews, Held & Malloy, Ltd.  
500 West Madison Street - Ste. 3400  
Chicago, Illinois 60661  
(312) 775-8000

| Electronic Patent Application Fee Transmittal |          |                                              |        |                      |
|-----------------------------------------------|----------|----------------------------------------------|--------|----------------------|
| Application Number:                           |          | 13607916                                     |        |                      |
| Filing Date:                                  |          | 10-Sep-2012                                  |        |                      |
| Title of Invention:                           |          | METHOD AND APPARATUS FOR SPECTRUM MONITORING |        |                      |
| First Named Inventor/Applicant Name:          |          | Patrick Tierney                              |        |                      |
| Filer:                                        |          | Chad M. Gilles/Laura Foley                   |        |                      |
| Attorney Docket Number:                       |          | 24351 US02                                   |        |                      |
| Filed as Small Entity                         |          |                                              |        |                      |
| Utility under 35 USC 111(a) Filing Fees       |          |                                              |        |                      |
| Description                                   | Fee Code | Quantity                                     | Amount | Sub-Total in USD(\$) |
| Basic Filing:                                 |          |                                              |        |                      |
| Pages:                                        |          |                                              |        |                      |
| Claims:                                       |          |                                              |        |                      |
| Miscellaneous-Filing:                         |          |                                              |        |                      |
| Petition:                                     |          |                                              |        |                      |
| Patent-Appeals-and-Interference:              |          |                                              |        |                      |
| Post-Allowance-and-Post-Issuance:             |          |                                              |        |                      |
| Utility Appl Issue Fee                        | 2501     | 1                                            | 480    | 480                  |
| Extension-of-Time:                            |          |                                              |        |                      |

| Description       | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|-------------------|----------|----------|--------|----------------------|
| Miscellaneous:    |          |          |        |                      |
| Total in USD (\$) |          |          |        | 480                  |

## Electronic Acknowledgement Receipt

|                                             |                                              |
|---------------------------------------------|----------------------------------------------|
| <b>EFS ID:</b>                              | 19309211                                     |
| <b>Application Number:</b>                  | 13607916                                     |
| <b>International Application Number:</b>    |                                              |
| <b>Confirmation Number:</b>                 | 4054                                         |
| <b>Title of Invention:</b>                  | METHOD AND APPARATUS FOR SPECTRUM MONITORING |
| <b>First Named Inventor/Applicant Name:</b> | Patrick Tierney                              |
| <b>Customer Number:</b>                     | 23446                                        |
| <b>Filer:</b>                               | Chad M. Gilles/Laura Foley                   |
| <b>Filer Authorized By:</b>                 | Chad M. Gilles                               |
| <b>Attorney Docket Number:</b>              | 24351US02                                    |
| <b>Receipt Date:</b>                        | 16-JUN-2014                                  |
| <b>Filing Date:</b>                         | 10-SEP-2012                                  |
| <b>Time Stamp:</b>                          | 10:17:00                                     |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                  |

### Payment information:

|                                          |              |
|------------------------------------------|--------------|
| Submitted with Payment                   | yes          |
| Payment Type                             | Credit Card  |
| Payment was successfully received in RAM | \$480        |
| RAM confirmation Number                  | 8364         |
| Deposit Account                          | 130017       |
| Authorized User                          | GILLES, CHAD |

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

| File Listing:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                     |                                          |                                          |                  |                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------------------------|------------------------------------------|------------------|------------------|
| Document Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Document Description                                | File Name                                | File Size(Bytes)/ Message Digest         | Multi Part /.zip | Pages (if appl.) |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Issue Fee Payment (PTO-85B)                         | 24351US02_issue_fee_transmit tal.pdf     | 174874                                   | no               | 1                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                     |                                          | af1317a764a20134cfd0c57d418f7c1b397d779e |                  |                  |
| Warnings:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                     |                                          |                                          |                  |                  |
| Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                     |                                          |                                          |                  |                  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                     | 24351US02_312_Amendment_ with_claims.pdf | 34639                                    | yes              | 7                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                     |                                          | de40beacb491f7f4f177faa980d58176a0263e1f |                  |                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Multipart Description/PDF files in .zip description |                                          |                                          |                  |                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Document Description                                |                                          | Start                                    | End              |                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Amendment after Notice of Allowance (Rule 312)      |                                          | 1                                        | 1                |                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Claims                                              |                                          | 2                                        | 6                |                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Applicant Arguments/Remarks Made in an Amendment    |                                          | 7                                        | 7                |                  |
| Warnings:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                     |                                          |                                          |                  |                  |
| Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                     |                                          |                                          |                  |                  |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Fee Worksheet (SB06)                                | fee-info.pdf                             | 30170                                    | no               | 2                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                     |                                          | 62ac99863ea4d2d219184993e0ac49fbfa552d54 |                  |                  |
| Warnings:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                     |                                          |                                          |                  |                  |
| Information:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                     |                                          |                                          |                  |                  |
| Total Files Size (in bytes):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                     |                                          | 239683                                   |                  |                  |
| <p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p> |                                                     |                                          |                                          |                  |                  |

# PRINTER RUSH

(PTO ASSISTANCE)

Application: 13607916

Examiner: Natnael

GAU: 2422

From: Bernice  
Crittenden

Location: RTFM

Creation Date: 06/19/2014

Tracking #:      Week Date:

| <u>DOC CODE</u>                         | <u>DOC DATE</u>   | <u>MISCELLANEOUS</u>                         |
|-----------------------------------------|-------------------|----------------------------------------------|
| <input type="checkbox"/> 1449           |                   | <input type="checkbox"/> Continuing Data     |
| <input type="checkbox"/> IDS            |                   | <input type="checkbox"/> Foreign Priority    |
| <input type="checkbox"/> CLM            |                   | <input type="checkbox"/> Document Legibility |
| <input type="checkbox"/> IIFW/FWCLM     |                   | <input type="checkbox"/> Fees                |
| <input type="checkbox"/> SRFW           |                   | <input type="checkbox"/> Petition (TC)       |
| <input type="checkbox"/> DRW            |                   | <input type="checkbox"/> Other               |
| <input type="checkbox"/> OATH           |                   |                                              |
| <input checked="" type="checkbox"/> 312 | <u>06/16/2014</u> |                                              |
| <input type="checkbox"/> SPEC           |                   |                                              |

## [RUSH] Message:

Please respond to the 06-16-2014 A.NA.

Thank you,  
BC

## [XRUSH] Response:

Initials: \_\_\_\_\_

Examiner: PUBS contacts - for DESIGNS: Don Fairchild, 703-756-1566; for ALL OTHER files: Bernadette Queen, 703-756-1565.

NOTE: This form will be included as part of the official USPTO record with the response document coded as XRUSH.

REV: Oct 11

# PRINTER RUSH

(PTO ASSISTANCE)

Application: 13607916

Examiner: Natnael

GAU: 2422

From: Bernice  
Crittenden

Location: RTFM

Creation Date: 06/19/2014

Tracking #:    Week Date:

| <u>DOC CODE</u>                         | <u>DOC DATE</u>   | <u>MISCELLANEOUS</u>                         |
|-----------------------------------------|-------------------|----------------------------------------------|
| <input type="checkbox"/> 1449           |                   | <input type="checkbox"/> Continuing Data     |
| <input type="checkbox"/> IDS            |                   | <input type="checkbox"/> Foreign Priority    |
| <input type="checkbox"/> CLM            |                   | <input type="checkbox"/> Document Legibility |
| <input type="checkbox"/> IIFW/FWCLM     |                   | <input type="checkbox"/> Fees                |
| <input type="checkbox"/> SRFW           |                   | <input type="checkbox"/> Petition (TC)       |
| <input type="checkbox"/> DRW            |                   | <input type="checkbox"/> Other               |
| <input type="checkbox"/> OATH           |                   |                                              |
| <input checked="" type="checkbox"/> 312 | <u>06/16/2014</u> |                                              |
| <input type="checkbox"/> SPEC           |                   |                                              |

## [RUSH] Message:

Please respond to the 06-16-2014 A.NA.

Thank you,  
BC

## [XRUSH] Response:

done !

Initials:   /P.N./  

Examiner: PUBS contacts - for DESIGNS: Don Fairchild, 703-756-1566; for ALL OTHER files: Bernadette Queen, 703-756-1565.

NOTE: This form will be included as part of the official USPTO record with the response document coded as XRUSH.

REV: Oct 11



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Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 13/607,916      | 09/10/2012  | Patrick Tierney      | 24351US02           | 4054             |

23446 7590 06/30/2014  
MCANDREWS HELD & MALLOY, LTD  
500 WEST MADISON STREET  
SUITE 3400  
CHICAGO, IL 60661

|          |
|----------|
| EXAMINER |
|----------|

NATNAEL, PAULO M

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2422

|                   |               |
|-------------------|---------------|
| NOTIFICATION DATE | DELIVERY MODE |
|-------------------|---------------|

06/30/2014

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mhmpto@mcandrews-ip.com

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                      |                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------|
| <b>Response to Rule 312 Communication</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Application No.</b><br>13/607,916 | <b>Applicant(s)</b><br>TIERNEY ET AL.                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Examiner</b><br>PAULOS M. NATNAEL | <b>Art Unit</b><br>2422                               |
| <p align="center"><b>-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --</b></p> <p>1. <input checked="" type="checkbox"/> The amendment filed on <u>16 June 2014</u> under 37 CFR 1.312 has been considered, and has been:</p> <p>a) <input checked="" type="checkbox"/> entered.</p> <p>b) <input type="checkbox"/> entered as directed to matters of form not affecting the scope of the invention.</p> <p>c) <input type="checkbox"/> disapproved because the amendment was filed after the payment of the issue fee.<br/> Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.</p> <p>d) <input type="checkbox"/> disapproved. See explanation below.</p> <p>e) <input type="checkbox"/> entered in part. See explanation below.</p> |                                      |                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                      | /PAULOS M NATNAEL/<br>Primary Examiner, Art Unit 2422 |

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
(Attorney Docket No. 24351US02)**

In the Application of:

Patrick Tierney et al.

Serial No. 13/607,916

Filed: Sept. 10, 2012

For: METHOD AND APPARATUS FOR  
SPECTRUM MONITORING

Examiner: NATNAEL, Paulos M.

Group Art Unit: 2422

Confirmation No. 4054

**AMENDMENT AFTER ALLOWANCE PURSUANT TO 37 CFR § 1.312**

Please Enter!

/P.N./

06/25/2014

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

Dear Sir:

This paper is submitted concurrently with the issue fee and responds to the Notice of Allowance mailed May 14, 2014 in the above-identified application. Applicant respectfully requests entry of the following remarks in the record and entry of the following claim amendments pursuant to 37 C.F.R. § 1.312.

**To:** mhmpto@mcandrews-ip.com,,  
**From:** PAIR\_eOfficeAction@uspto.gov  
**Cc:** PAIR\_eOfficeAction@uspto.gov  
**Subject:** Private PAIR Correspondence Notification for Customer Number 23446

Jun 30, 2014 05:19:17 AM

Dear PAIR Customer:

MCANDREWS HELD & MALLOY, LTD  
500 WEST MADISON STREET  
SUITE 3400  
CHICAGO, IL 60661  
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 23446 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

**Disclaimer:**

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| Application | Document | Mailroom Date | Attorney Docket No. |
|-------------|----------|---------------|---------------------|
| 13607916    | N271     | 06/30/2014    | 24351US02           |

To view your correspondence online or update your email addresses, please visit us anytime at <https://portal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at [EBC@uspto.gov](mailto:EBC@uspto.gov) with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

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[www.uspto.gov](http://www.uspto.gov)

| APPLICATION NO. | ISSUE DATE | PATENT NO. | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|------------|------------|---------------------|------------------|
| 13/607,916      | 07/29/2014 | 8792008    | 24351US02           | 4054             |

23446 7590 07/09/2014  
MCANDREWS HELD & MALLOY, LTD  
500 WEST MADISON STREET  
SUITE 3400  
CHICAGO, IL 60661

## ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

### **Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)** (application filed on or after May 29, 2000)

The Patent Term Adjustment is 52 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Patrick Tierney, Solana Beach, CA;  
Jun Huang, San Diego, CA;  
Timothy Gallagher, Encinitas, CA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit [SelectUSA.gov](http://SelectUSA.gov).

**To:** mhmpto@mcandrews-ip.com,,  
**From:** PAIR\_eOfficeAction@uspto.gov  
**Cc:** PAIR\_eOfficeAction@uspto.gov  
**Subject:** Private PAIR Correspondence Notification for Customer Number 23446

Jul 10, 2014 05:31:47 AM

Dear PAIR Customer:

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500 WEST MADISON STREET  
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CHICAGO, IL 60661  
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 23446 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

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| Application | Document  | Mailroom Date | Attorney Docket No. |
|-------------|-----------|---------------|---------------------|
| 13607916    | ISSUE.NTF | 07/09/2014    | 24351US02           |

To view your correspondence online or update your email addresses, please visit us anytime at <https://sportal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at [EBC@uspto.gov](mailto:EBC@uspto.gov) with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

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Alexandria, Virginia 22313-1450  
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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY.DOCKET NO./TITLE | REQUEST ID |
|--------------------|-----------------------|-----------------------|-----------------------|------------|
| 13/607,916         | 09/10/2012            | Patrick Tierney       | 24351US02             | 50658      |

## Acknowledgement of Loss of Entitlement to Entity Status Discount

The entity status change request below filed through Private PAIR on 11/02/2017 has been accepted.

### CERTIFICATIONS:

#### Change of Entity Status:

✕ Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be notification of loss of entitlement to small or micro entity status, as applicable.

This portion must be completed by the signatory or signatories making the entity status change in accordance with 37 CFR 1.4(d)(4).

|                      |                           |
|----------------------|---------------------------|
| Signature:           | /Christopher C. Winslade/ |
| Name:                | Christopher C. Winslade   |
| Registration Number: | 36308                     |

**POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO**

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

☒

Practitioners associated with Customer Number:

23,446

**OR**

☐

Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

| Name | Registration Number |
|------|---------------------|
|      |                     |
|      |                     |
|      |                     |
|      |                     |
|      |                     |
|      |                     |

| Name | Registration Number |
|------|---------------------|
|      |                     |
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As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

☒

The address associated with Customer Number:

23,446

**OR**

☐

Firm or individual name

Address

City

State

Zip

Country

Telephone

Email

Assignee name and address: ENTROPIC COMMUNICATIONS, LLC  
1345 AVENUE OF THE AMERICAS, 46TH FLOOR  
NEW YORK, NY 10105

**A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.**

**SIGNATURE of Assignee of Record**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Signature /Andrea L. Gothing/

Date 2021-05-04

Name Andrea L. Gothing

Telephone 415-830-0613

Title Licensing Officer and Authorized Signatory, Entropic Communications, LLC

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

## Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

## Electronic Acknowledgement Receipt

|                                             |                                              |
|---------------------------------------------|----------------------------------------------|
| <b>EFS ID:</b>                              | 43005681                                     |
| <b>Application Number:</b>                  | 13607916                                     |
| <b>International Application Number:</b>    |                                              |
| <b>Confirmation Number:</b>                 | 4054                                         |
| <b>Title of Invention:</b>                  | METHOD AND APPARATUS FOR SPECTRUM MONITORING |
| <b>First Named Inventor/Applicant Name:</b> | Patrick Tierney                              |
| <b>Customer Number:</b>                     | 23446                                        |
| <b>Filer:</b>                               | Ronald H. Spuhler/Deborah Wilson             |
| <b>Filer Authorized By:</b>                 | Ronald H. Spuhler                            |
| <b>Attorney Docket Number:</b>              | 24351US02                                    |
| <b>Receipt Date:</b>                        | 16-JUN-2021                                  |
| <b>Filing Date:</b>                         | 10-SEP-2012                                  |
| <b>Time Stamp:</b>                          | 15:41:39                                     |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                  |

### Payment information:

|                        |    |
|------------------------|----|
| Submitted with Payment | no |
|------------------------|----|

### File Listing:

| Document Number | Document Description                          | File Name                               | File Size(Bytes)/<br>Message Digest                    | Multi Part /.zip | Pages (if appl.) |
|-----------------|-----------------------------------------------|-----------------------------------------|--------------------------------------------------------|------------------|------------------|
| 1               | Assignee showing of ownership per 37 CFR 3.73 | 24351US02_373c_Statement_A<br>IA-96.pdf | 120179<br><br>51f941950754f24991086a8816a14c2df6ac4b9e | no               | 3                |

### Warnings:

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                   |                                                                      |                                                            |    |   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------------------------------------------------------------|------------------------------------------------------------|----|---|
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                                                                      |                                                            |    |   |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Power of Attorney | Entropic-<br>POA_General_Assignee_Entrop<br>icCommunications_ALG.pdf | 487892<br><br>51444e06ae84b241bfc127dc47c5d6c6469<br>44dd7 | no | 2 |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                   |                                                                      |                                                            |    |   |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                                                                      |                                                            |    |   |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |                                                                      | 608071                                                     |    |   |
| <p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> <b>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</b></p> |                   |                                                                      |                                                            |    |   |

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**STATEMENT UNDER 37 CFR 3.73(c)**Applicant/Patent Owner: ENTROPIC COMMUNICATIONS, LLCApplication No./Patent No.: 13/607,916 Filed/Issue Date: 2012-09-10Titled: METHOD AND APPARATUS FOR SPECTRUM MONITORINGENTROPIC COMMUNICATIONS, LLC, a limited liability company

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is \_\_\_\_\_%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.
- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Timothy Gallagher, Patrick Tierney, Jun Huang To: MAXLINEAR, INC.The document was recorded in the United States Patent and Trademark Office at  
Reel 029034, Frame 0905, or for which a copy thereof is attached.2. From: MAXLINEAR, INC. To: ENTROPIC COMMUNICATIONS, LLCThe document was recorded in the United States Patent and Trademark Office at  
Reel 055898, Frame 0230, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

**STATEMENT UNDER 37 CFR 3.73(c)**

3. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
 Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

4. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
 Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

5. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
 Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

6. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at  
 Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Ronald H. Spuhler/

2021-06-16

Signature

Date

Ronald H. Spuhler

52245

Printed or Typed Name

Title or Registration Number

## Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|--------------------|-----------------------|-----------------------|------------------------|
| 13/607,916         | 09/10/2012            | Patrick Tierney       | 24351US02              |

23446  
MCANDREWS HELD & MALLOY, LTD  
500 WEST MADISON STREET  
SUITE 3400  
CHICAGO, IL 60661

**CONFIRMATION NO. 4054**  
**POA ACCEPTANCE LETTER**



Date Mailed: 06/22/2021

## NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/16/2021.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/zabraha/

**To:** mhmpto@mcandrews-ip.com,,  
**From:** PAIR\_eOfficeAction@uspto.gov  
**Cc:** PAIR\_eOfficeAction@uspto.gov  
**Subject:** Private PAIR Correspondence Notification for Customer Number 23446

Jun 22, 2021 04:25:17 AM

Dear PAIR Customer:

MCANDREWS HELD & MALLOY, LTD  
500 WEST MADISON STREET  
SUITE 3400  
CHICAGO, IL 60661  
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 23446 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

**Disclaimer:**

The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

| Application | Document | Mailroom Date | Attorney Docket No. |
|-------------|----------|---------------|---------------------|
| 13607916    | N570     | 06/22/2021    | 24351US02           |

To view your correspondence online or update your email addresses, please visit us anytime at <https://sportal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at [EBC@uspto.gov](mailto:EBC@uspto.gov) with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE  
PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

AO 120 (Rev. 08/10)

|                                                                                                                                               |                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>TO: Mail Stop 8</b><br><b>Director of the U.S. Patent and Trademark Office</b><br><b>P.O. Box 1450</b><br><b>Alexandria, VA 22313-1450</b> | <b>REPORT ON THE</b><br><b>FILING OR DETERMINATION OF AN</b><br><b>ACTION REGARDING A PATENT OR</b><br><b>TRADEMARK</b> |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been  
filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. ( ☐ the patent action involves 35 U.S.C. § 292.):

|                                           |                                |                                                                                              |
|-------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------|
| DOCKET NO.<br>2:22-cv-75                  | DATE FILED<br>3/9/2022         | U.S. DISTRICT COURT<br>Eastern District of Texas                                             |
| PLAINTIFF<br>ENTROPIC COMMUNICATIONS, LLC |                                | DEFENDANT<br>DIRECTV, LLC, AT&T, INC., AT&T SERVICES, INC.,<br>and AT&T COMMUNICATIONS, LLC. |
| PATENT OR<br>TRADEMARK NO.                | DATE OF PATENT<br>OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK                                                                |
| 1 7,130,576                               | 10/31/2006                     | Entropic Communications, LLC                                                                 |
| 2 7,542,715                               | 6/2/2009                       | Entropic Communications, LLC                                                                 |
| 3 8,792,008                               | 7/29/2014                      | Entropic Communications, LLC                                                                 |
| 4                                         |                                |                                                                                              |
| 5                                         |                                |                                                                                              |

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

|                            |                                                                                                                                                               |                               |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| DATE INCLUDED              | INCLUDED BY<br><input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading |                               |
| PATENT OR<br>TRADEMARK NO. | DATE OF PATENT<br>OR TRADEMARK                                                                                                                                | HOLDER OF PATENT OR TRADEMARK |
| 1                          |                                                                                                                                                               |                               |
| 2                          |                                                                                                                                                               |                               |
| 3                          |                                                                                                                                                               |                               |
| 4                          |                                                                                                                                                               |                               |
| 5                          |                                                                                                                                                               |                               |

In the above—entitled case, the following decision has been rendered or judgement issued:

|                    |
|--------------------|
| DECISION/JUDGEMENT |
|--------------------|

|       |                   |      |
|-------|-------------------|------|
| CLERK | (BY) DEPUTY CLERK | DATE |
|-------|-------------------|------|

Copy 1—Upon initiation of action, mail this copy to Director    Copy 3—Upon termination of action, mail this copy to Director  
Copy 2—Upon filing document adding patent(s), mail this copy to Director    Copy 4—Case file copy

AO 120 (Rev. 08/10)

|                                                                                                                                               |                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>TO: Mail Stop 8</b><br><b>Director of the U.S. Patent and Trademark Office</b><br><b>P.O. Box 1450</b><br><b>Alexandria, VA 22313-1450</b> | <b>REPORT ON THE</b><br><b>FILING OR DETERMINATION OF AN</b><br><b>ACTION REGARDING A PATENT OR</b><br><b>TRADEMARK</b> |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been  
filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. ( ☐ the patent action involves 35 U.S.C. § 292.):

|                                           |                                |                                                                                    |
|-------------------------------------------|--------------------------------|------------------------------------------------------------------------------------|
| DOCKET NO.<br>2:22-cv-76                  | DATE FILED<br>3/9/2022         | U.S. DISTRICT COURT<br>Eastern District of Texas                                   |
| PLAINTIFF<br>ENTROPIC COMMUNICATIONS, LLC |                                | DEFENDANT<br>DISH NETWORK CORP.; DISH NETWORK LLC; AND<br>DISH NETWORK SERVICE LLC |
| PATENT OR<br>TRADEMARK NO.                | DATE OF PATENT<br>OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK                                                      |
| 1 7,130,576                               | 10/31/2006                     | Entropic Communications, LLC                                                       |
| 2 7,542,715                               | 6/2/2009                       | Entropic Communications, LLC                                                       |
| 3 8,792,008                               | 7/29/2014                      | Entropic Communications, LLC                                                       |
| 4                                         |                                |                                                                                    |
| 5                                         |                                |                                                                                    |

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

|                            |                                                                                                                                                               |                               |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| DATE INCLUDED              | INCLUDED BY<br><input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading |                               |
| PATENT OR<br>TRADEMARK NO. | DATE OF PATENT<br>OR TRADEMARK                                                                                                                                | HOLDER OF PATENT OR TRADEMARK |
| 1                          |                                                                                                                                                               |                               |
| 2                          |                                                                                                                                                               |                               |
| 3                          |                                                                                                                                                               |                               |
| 4                          |                                                                                                                                                               |                               |
| 5                          |                                                                                                                                                               |                               |

In the above—entitled case, the following decision has been rendered or judgement issued:

|                    |
|--------------------|
| DECISION/JUDGEMENT |
|--------------------|

|       |                   |      |
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| CLERK | (BY) DEPUTY CLERK | DATE |
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AO 120 (Rev. 08/10)

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| <b>TO:</b><br><b>Mail Stop 8</b><br><b>Director of the U.S. Patent and Trademark Office</b><br><b>P.O. Box 1450</b><br><b>Alexandria, VA 22313-1450</b> | <b>REPORT ON THE</b><br><b>FILING OR DETERMINATION OF AN</b><br><b>ACTION REGARDING A PATENT OR</b><br><b>TRADEMARK</b> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. ( ☐ the patent action involves 35 U.S.C. § 292.):

|                                           |                                |                                                  |
|-------------------------------------------|--------------------------------|--------------------------------------------------|
| DOCKET NO.<br>2:22-cv-125                 | DATE FILED<br>4/27/2022        | U.S. DISTRICT COURT<br>Eastern District of Texas |
| PLAINTIFF<br>ENTROPIC COMMUNICATIONS, LLC |                                | DEFENDANT<br>CHARTER COMMUNICATIONS, INC., ET AL |
| PATENT OR<br>TRADEMARK NO.                | DATE OF PATENT<br>OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK                    |
| 1 8,223,775                               | 7/17/2012                      | Entropic Communications, LLC                     |
| 2 8,284,690                               | 10/9/2012                      | Entropic Communications, LLC                     |
| 3 8,792,008                               | 7/29/2014                      | Entropic Communications, LLC                     |
| 4 9,210,362                               | 12/8/2015                      | Entropic Communications, LLC                     |
| 5 9,825,826                               | 11/21/2017                     | Entropic Communications, LLC                     |

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

|                            |                                                                                                                                                               |                               |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| DATE INCLUDED              | INCLUDED BY<br><input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading |                               |
| PATENT OR<br>TRADEMARK NO. | DATE OF PATENT<br>OR TRADEMARK                                                                                                                                | HOLDER OF PATENT OR TRADEMARK |
| 1                          |                                                                                                                                                               |                               |
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| 3                          |                                                                                                                                                               |                               |
| 4                          |                                                                                                                                                               |                               |
| 5                          |                                                                                                                                                               |                               |

In the above—entitled case, the following decision has been rendered or judgement issued:

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| DECISION/JUDGEMENT |
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AO 120 (Rev. 08/10)

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| <b>TO:</b><br><b>Mail Stop 8</b><br><b>Director of the U.S. Patent and Trademark Office</b><br><b>P.O. Box 1450</b><br><b>Alexandria, VA 22313-1450</b> | <b>REPORT ON THE</b><br><b>FILING OR DETERMINATION OF AN</b><br><b>ACTION REGARDING A PATENT OR</b><br><b>TRADEMARK</b> |
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| DOCKET NO.<br>2:22-cv-125                 | DATE FILED<br>4/27/2022        | U.S. DISTRICT COURT<br>Eastern District of Texas |
| PLAINTIFF<br>ENTROPIC COMMUNICATIONS, LLC |                                | DEFENDANT<br>CHARTER COMMUNICATIONS, INC., ET AL |
| PATENT OR<br>TRADEMARK NO.                | DATE OF PATENT<br>OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK                    |
| 1 10,135,682                              | 11/20/2018                     | Entropic Communications, LLC                     |
| 2                                         |                                |                                                  |
| 3                                         |                                |                                                  |
| 4                                         |                                |                                                  |
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

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| DATE INCLUDED              | INCLUDED BY<br><input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading |                               |
| PATENT OR<br>TRADEMARK NO. | DATE OF PATENT<br>OR TRADEMARK                                                                                                                                | HOLDER OF PATENT OR TRADEMARK |
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In the above—entitled case, the following decision has been rendered or judgement issued:

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| DECISION/JUDGEMENT |
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## Patent Trial and Appeal Board

A petition has been filed in Patent Number 8,792,008, Application Number 13/607,916 on 02/06/2023.

The AIA Review Number is IPR2023-00393.

To view the documents filed in this petition, go to <https://ptab.uspto.gov> and Search for the AIA Review Number.

- Enter your search criteria on the “Search PTAB” page
- Type in the AIA Review Number or Patent Number
- You will need to answer the CAPTCHA to prove that you are not a robot.
- Click on the “Search” button
- The search results will appear identifying the AIA Review Number
- Click on the “View Documents” button
- A pop up window will appear with a list of documents
- Click on the “Download” button to download the document.

Questions regarding this notice should be directed to the Patent Trial and Appeal Board at 571-272-7822.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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DISH NETWORK CORPORATION, DISH NETWORK L.L.C., and  
DISH NETWORK SERVICE L.L.C.,  
Petitioner,

v.

ENTROPIC COMMUNICATIONS, LLC,  
Patent Owner.

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IPR2023-00393  
Patent 8,792,008 B2

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Before LYNNE H. BROWNE, PATRICK R. SCANLON, and  
JON M. JURGOVAN, *Administrative Patent Judges*.

SCANLON, *Administrative Patent Judge*.

DECISION  
Settlement Prior to Institution of Trial  
*37 C.F.R. § 42.74*

## I. DISCUSSION

On September 11, 2023, with our authorization, DISH Network Corporation, DISH Network L.L.C., and Dish Network Service L.L.C. (collectively, “Petitioner”) and Entropic Communications, LLC (“Patent Owner”), jointly filed: (1) a Joint Motion to Terminate Proceeding Pursuant to 35 U.S.C. § 317 and 37 C.F.R. §§ 42.72, 42.74 (Paper 12, “Mot.”); (2) a true copy of the parties’ settlement agreement (Ex. 1032, “the Agreement”); and (3) a Joint Request for Agreement to be Treated as Business Confidential Information and be Kept Separate Pursuant to 35 U.S.C. § 317(b) and 37 C.F.R. § 42.74 (Paper 13). For the following reasons, we *grant* the parties’ Joint Motion to Terminate Proceeding and their joint request to keep the Agreement as business confidential information.

This proceeding is still in its preliminary stage. On February 6, 2023, Petitioner filed a Petition requesting an *inter partes* review (“IPR”) of claims 1–18 of U.S. Patent No. 8,792,008 B2 (“the ’008 patent”). Paper 1. Patent Owner filed a Preliminary Response on June 20, 2023. Paper 7. We have not entered an institution decision.

In the Joint Motion to Terminate Proceeding, the parties indicate that they have entered into the Agreement, which completely resolves all pending controversies between the parties concerning the ’008 patent, and pursuant to which they agreed to seek termination of this IPR proceeding. Mot. 1, 2. The parties represent that “a true copy of the Agreement in connection with this matter as required by statute” has been submitted concurrently herewith. *Id.* at 1. The parties also “jointly certify that there are no other agreements or understandings, oral or written, between them, including any collateral agreements, made in connection with, or in contemplation of, the termination of this proceeding.” *Id.*

Under these particular circumstances, we determine that it is appropriate to dismiss the Petition without rendering any further decisions, thereby terminating this proceeding. *See* 37 C.F.R. § 42.71(a). We also have reviewed the true copy of the parties' Agreement, and we determine that good cause exists to treat the Agreement as business confidential information, and keep it separate from the file of the involved patents, under 37 C.F.R. § 42.74(c).

## II. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the parties' joint request to treat the true copy of the Agreement as business confidential information, and to keep separate from the file of the involved patent, under 37 C.F.R. § 42.74(c) is *granted*;

FURTHER ORDERED that the Agreement (Exhibit 1032) shall remain business confidential information, and shall be kept separate from the file of the involved patent; and

FURTHER ORDERED that the parties' Joint Motion to Terminate Proceeding is *granted*, and the Petition is dismissed resulting in termination of this proceeding.

IPR2023-00393  
Patent 8,792,008 B2

FOR PETITIONER:

Patrick J. McKeever  
[mckeever-ptab@perkinscoie.com](mailto:mckeever-ptab@perkinscoie.com)

David St. John-Larkin  
[St-john-larkin-ptab@perkinscoie.com](mailto:St-john-larkin-ptab@perkinscoie.com)

FOR PATENT OWNER:

Jason Engel  
[Jason.engel.ptab@klgates.com](mailto:Jason.engel.ptab@klgates.com)

Katherine Allor  
[Katy.allor@klgates.com](mailto:Katy.allor@klgates.com)

Samuel Richey  
[Samuel.richey@klgates.com](mailto:Samuel.richey@klgates.com)

Brian Bozzo  
[Brian.bozzo@klgates.com](mailto:Brian.bozzo@klgates.com)