3/8/11

Form PTO-1595 (Rev 03-09)
OMB No 0651-0027 (exp 03/31/2009)

03/10/2011

103619594

U S DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

To the Director of the U S Patent an ocuments or the new address(es) below

OPAP MAR 08 2011 IAP20 PATENT & TRADEMARK OFFICE

**1. Name of conveying party(ies)**

ZHONE TECHNOLOGIES, INC

Additional name(s) of conveying party(ies) attached? ☐ Yes ☐ No

**2. Name and address of receiving party(ies)**

Name PATENT BUSINESS DEVELOPMENT, LLC

Internal Address

Street Address 506 BALD EAGLE DRIVE

City JUPITER

State FL

Country USA Zip 33477

Additional name(s) & address(es) attached? ☐ Yes ☒ No

**3. Nature of conveyance/Execution Date(s):**

Execution Date(s) february 14, 2011

☒ Assignment ☐ Merger
☐ Security Agreement ☐ Change of Name
☐ Joint Research Agreement
☐ Government Interest Assignment
☐ Executive Order 9424, Confirmatory License
☐ Other

**4. Application or patent number(s):**

☐ This document is being filed together with a new application

A Patent Application No (s)

B Patent No (s)

SEE ATTACHED TABLE A-1

Additional numbers attached? ☒ Yes ☐ No

**5. Name and address to whom correspondence concerning document should be mailed:**

Name: ROBERT A WESTERLUND

Internal Address:

Street Address. 506 BALD EAGLE DRIVE

City JUPITER

State FL Zip 33477

Phone Number 703-973-8439

Fax Number 305-437-7670

Email Address bob@robertwesterlund.com

**6. Total number of applications and patents involved:** 42

**7. Total fee** (37 CFR 1 21(h) & 3 41) $ 1680

☐ Authorized to be charged to deposit account
☒ Enclosed
☐ None required (government interest not affecting title)

**8. Payment Information**

Deposit Account Number 03/10/2011 TWASHING 00000030 5479650
01 FC:8021 1680.00 0

Authorized User Name

**9. Signature:**

Signature

3/7/2011
Date

ERIC M. DOWLING (REG. 44,094)
Name of Person Signing

Total number of pages including cover sheet, attachments, and documents: 8

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Mail Stop Assignment Recordation Services, Director of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450

Patent numbers



**TABLE A-1**

| | | | |
|---|---|---|---|
| 1992-13 | 5479650 | 07/996,434 | Method and Apparatus For Switching Communications From a Secondary Channel to a Primary Channel |
| 1992-24 | 5479480 | 08/175,449 | Dual Mode Cellular Modem |
| 1993-11 | 5396519 | 08/141,301 | Method and Apparatus for Adaptively Providing Precoding and Preemphasis Conditioning to Signal Data for Transfer over a Communication Channel |
| 1993-56 | 5475713 | 08/076,530 | Shaped Signal Spaces in a Simultaneous Voice and Data System |
| 1993-57 | 5436930 | 08/076,516 | Simultaneous Analog and Digital Communications with a Selection of Different Signal Point Constellations Based on Signal Energy |
| 1993-59 | 5559791 | 07/076,506 | Companding in a Simultaneous Voice and Data Communications System |
| 1993-81 | 5506866 | 08/151,686 | Side-Channel Communications in Simultaneous Voice and Data Transmission |
| 1993-81a | 5475691 | 08/151,677 | Voice Activated Data Rate Change in Simultaneous Voice and Data Transmission |
| 1993-87 | 5636282 | 08/262,169 | Method for Dial-In Access Security Using a Multimedia Modem |
| 1994-12 | 5600712 | 08/333,686<br>08/628,410 | Enabling Technique for Quickly Establishing High Speed PSTN Connections in Telecommuting Applications |
| 1995-29a | 5784405 | 08/702,023 | Noncooperative Feedback System and Method for a Compensation System Associated with a Transmitter or Codec |
| 1995-29e | 6072825 | 08/936,054 | Noncooperative Feedback System and Method for a Compensation System Associated with a Transmitter or Codec |
| 1995-30 | 5826034 | 08/695,033 | System and Method for Transmission of Communication Signals through Different Media |
| 1995-36 | 6160790 | 08/808,893 | Crosstalk Canceller System & Method |
| 1996-04 | 5841840 | 08/772,734 | Multiple Modem and Method for Providing Voice on Demand |
| 1996-16 | 6091710 | 08/888,769 | System and Method for Preventing Data Slow Down Over Asymmetric Data Transmission Links |
| 1996-19 | 5848150 | 08/805,606 | Passive Distributed Filter System and Method |
| 1997-02a | 6307923 | 09/487,699 | Apparatus and Method for User Tone Notification During Data Suspension or Degradation |
| 1997-11 | 6084885 | 09/027,705 | Apparatus and Method for DSP Sharing Using Statistical Properties of Data |
| 1997-32 | 6173021 | 08/966,180 | Method and Apparatus for Reducing Interference in a Twisted Wire Pair Transmission System |
| 1997-32a | 6477212 | 09/756,382 | Method and Apparatus for Reducing Interference in a Twisted Wire Pair Transmission System |
| 1997-33 | 6330275 | 09/100,695 | Method and Apparatus for Overcoming Periodic Disturbances in Digital Subscriber Loops |
| 1997-35 | 6212374 | 09/013,573 | Disabling of Echo Cancelers after Call Startup |
| 1998-05 | 7039015 | 09/293,009 | System and Method for the Collection and Display of Network Performance Data in Communication Network |
| 1998-08 | 6311288 | 09/085,702 | System and Method for Virtual Circuit Backup in a Communication Network |
| 1998-20 | 6424675 | 09/368,328 | System and Method for Implementing V.90 Central Site Modem Functionality at a Customer Premises |
| 1998-23 | 6826620 | 09/304,188 | Network Congestion Control System and Method |
| 1998-28 | 6219705 | 09/288,949 | System and Method of Collecting and Maintaining Historical Top Communicator Information on a Communication Device |
| 1999-03 | 6912575 | 09/338,812 | System and Method for Automatically Determining Recommended Committed Information Rate in a Frame Relay Network |

Adendum to Recordation
Form PTO-1595

Patent numbers ↓

**TABLE A-1** – continued

| | | | |
|---|---|---|---|
| 1999-32 | 6856597 | 09/780,775 | System and Method for Statistical Control of Power Dissipation with Host Enforcement |
| 2000-03 | 7310671 | 09/650,867 | System and Method for a Trouble Shooting Portal to Allow Temporary Management Access to a Communication Device |
| 2000-16 | 6885730 | 09/907,870 | System and Method for Subscriber Loop Testing |
| 2001-08 | 7127048 | 10/266,897 | Systems and Methods for Integrating Analog Voice Service |
| 2002-15 | 7310356 | 10/603,038 | Automatic Discovery of Network Core Type |
| 2002-16 | 7408882 | 10/602,940 | Automatic Discovery of Network Node Addresses |
| ELAS-01 | 5912895 | 08/640,705 | Information Network Access Apparatus and Methods for Communicating Information Packets Via Telephone Lines |
| ELAS-01a | 6327264 | 09/251,939 | Information Network Access Apparatus and Methods for Communicating Information Packets Via Telephone Lines |
| ELAS-01b | 6587473 | 09/930,178 | Information Network Access Apparatus and Methods for Communicating Information Packets Via Telephone Lines |
| 1998-08 | 6,311;288 | 09/085,702 | System and Method for Virtual Circuit Backup in a Communication Network |
| 1997-10 | 6,470,046 | 09/032,387 | Apparatus and Method for a Combined DSL and Voice System |
| 1996-13 | 6,269,149 | 08/850,174 | System and Method for Enhancing a Communication Link |
| 1996-13a | 6,356,622 | 09/389,333 | System and Apparatus for Enhancing a Network Link |

Addendum to Recordation Form PTO-1595

**EXHIBIT A-3**
**FORM OF U.S. PATENT ASSIGNMENT**

WHEREAS, Zhone Technologies, Inc. a Delaware Corporation having an office at 7001 Oakport Street, Oakland, CA ("Company") is the owner of certain United States patents.

WHEREAS, Patent Business Development, LLC, a Delaware limited liability company having an office at 506 Bald Eagle Drive, Jupiter, FL 33477 ("PBD") is desirous of acquiring title in and to the Patents.

WHEREAS, Company and PBD have entered into that certain Feb. 10, 2011, Patent Sale Agreement (the "Agreement").

WHEREAS, Assigned Patents shall mean all the patents listed on **Table A-1** attached hereto together with all present and future divisions, continuations, reissues, reexaminations and all claims, demands, or causes of action that Company has or might have by reason of any infringement of any of the foregoing prior to the effective date of this assignment, including the right to sue and collect damages for all past, present and future infringement and all lost profits resulting therefrom.

WHEREAS, under the terms of the Agreement, Company has agreed to, among other things, assign to PBD all of Company's right, title and interest in, to and under the Assigned Patents.

NOW, THEREFORE, in consideration of good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, Company hereby sells, assigns, transfers and conveys unto PBD its successors and assigns, all of Company's right, title and interest in and to the Assigned Patents.

## TABLE A-1

| | | | |
|---|---|---|---|
| 1992-13 | 5479650 | 07/996,434 | Method and Apparatus For Switching Communications From a Secondary Channel to a Primary Channel |
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| 1995-29a | 5784405 | 08/702,023 | Noncooperative Feedback System and Method for a Compensation System Associated with a Transmitter or Codec |
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| 1998-28 | 6219705 | 09/288,949 | System and Method of Collecting and Maintaining Historical Top Communicator Information on a Communication Device |
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| 2000-16 | 6885730 | 09/907,870 | System and Method for Subscriber Loop Testing |
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| 1997-10 | 6,470,046 | 09/032,387 | Apparatus and Method for a Combined DSL and Voice System |
| 1996-13 | 6,269,149 | 08/850,174 | System and Method for Enhancing a Communication Link |
| 1996-13a | 6,356,622 | 09/389,333 | System and Apparatus for Enhancing a Network Link |

This assignment is subject in all respects to the terms and conditions of the Agreement and is intended only to document the assignment of the Assigned Patents. Nothing contained in this assignment shall be deemed to supersede any of the obligations, agreements, representations, covenants or warranties of Company and PBD contained in the Agreement.

Zhone Technologies, Inc.

By: _____
Name: KIRK HISAKA
Its: CFO

State of _____

County of _____

Signed before me this _____ of _____, 2011, by _____, _____ of Zhone Technologies, Inc., who is personally known to me or who presented _____ as identification and did/did not take an oath.

_____
Notary Public

## CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California
County of Alameda }

On 2/14/11 (Date) before me, K.S. Bradley, Notary Public (Here Insert Name and Title of the Officer),

personally appeared Kirk D. Misaka (Name(s) of Signer(s))

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) ~~is/are~~ subscribed to the within instrument and acknowledged to me that ~~he/she/they~~ executed the same in ~~his/her/their~~ authorized capacity(~~ies~~), and that by ~~his/her/their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: K.S. Bradley (Signature of Notary Public)

K. S. BRADLEY
Commission # 1876746
Notary Public - California
Alameda County
My Comm. Expires Jan 12, 2014

Place Notary Seal and/or Stamp Above

### OPTIONAL

*Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document*

**Description of Attached Document**

Title or Type of Document: Form of U.S. Patent Assignment

Document Date: 2/14/2011 Number of Pages: 1 plus 4

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**Capacity(ies) Claimed by Signer(s)**

| Signer's Name: _____ | Signer's Name: _____ |
|---|---|
| ☒ Corporate Officer — Title(s): CFO | ☐ Corporate Officer — Title(s): _____ |
| ☐ Individual | ☐ Individual |
| ☐ Partner — ☐ Limited ☐ General | ☐ Partner — ☐ Limited ☐ General |
| ☐ Attorney in Fact | ☐ Attorney in Fact |
| ☐ Trustee | ☐ Trustee |
| ☐ Guardian or Conservator | ☐ Guardian or Conservator |
| ☐ Other: _____ | ☐ Other: _____ |
| Signer Is Representing: _____ | Signer Is Representing: _____ |
| RIGHT THUMBPRINT OF SIGNER — Top of thumb here | RIGHT THUMBPRINT OF SIGNER — Top of thumb here |